

AXIS 5600+ Network Print Server

User's Manual

NetWare

Windows

OS/2

Macintosh

UNIX



Notices

Please take some time to read through the safety notices before installing the AXIS 5600+.

Caution! – must be observed to avoid loss of data or damage to your equipment.

Important: – must be observed to avoid operational impairment.

Do not proceed beyond any of the above notices unless you have taken appropriate measures!

USA This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna
- increase the separation between the equipment and receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help. Shielded (STP) network cables must be used with this unit to ensure compliance with the class B limits..

Europe This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022, and the requirements for immunity according to EN55024 residential, commercial, and light industry. Compliance is not valid for unshielded network cables.

Japan This is a class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual. Compliance is not valid for unshielded network cables.

Australia This electronic device meets the requirements of the Radio communications (Electromagnetic Compatibility) Standard 1998 AS/NZS 3548. Compliance is not valid for unshielded network cables.

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Support Services Should you require technical assistance, please contact your Axis dealer. If your questions cannot be answered immediately, your Axis dealer will forward your queries through the appropriate channels to ensure you a rapid response. If you are connected to the Internet, you can find on-line manuals, technical support, software updates, application software, corporate information, etc. at <http://www.axis.com/techsup/>

Patent information Axis AB has intellectual property rights relating to technology embodied in the product that is described in this document. In particular, and without limitation, these intellectual property rights may include one or

more of the patents listed at <http://www.axis.com/patent.htm> and one or more additional patents or pending patent applications in the US and other countries.

Note:

Use Axis power supplies only!

AXIS 5600+ version 1: A41208 (PS-D)
AXIS 5600+ version 2: SA120A-0530x-C (PS-H) or SA10-0515x (PS-F)

To determine which print server version you have, please check the product number located on the underside label of the AXIS 5600+:

version 1 - 0129-xxx-01
version 2 - 0129-xxx-02

AXIS 5600+ User's Manual	Revision 1.1
Part No: 19107	Date: June 2003
For firmware release 6.34 and up	
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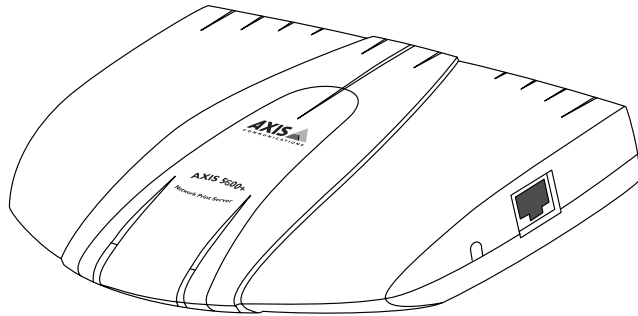
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Introduction

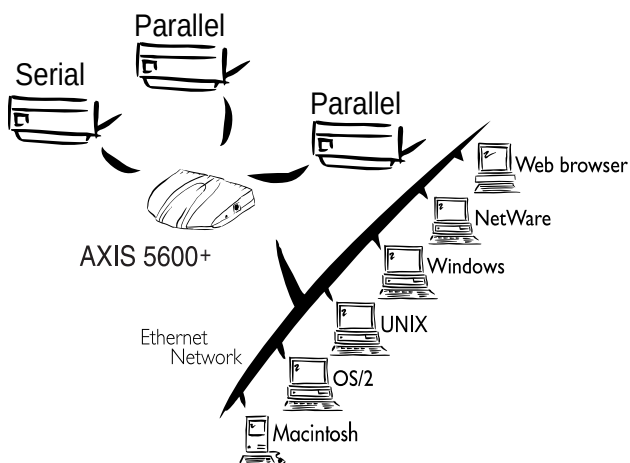
Based on ThinServer technology, the AXIS 5600+ allows you to share your available printer resources with everyone on your network. You can connect your AXIS 5600+ directly to any standard printer.



The AXIS 5600+ print server

Note: If your printer supports the mini-Centronics standard, a centronics-to-mini-centronics cable must be used.

Where to use it



Supported Environments

The AXIS 5600+ is the ideal print server in mixed environments as it can communicate with all the major computer systems and network protocols including:

- Windows
- Windows clients connected to LANtastic networks
- NetWare
- UNIX
- OS/2
- Macintosh
- Internet/intranet via any Web browser with JavaScript support

How to use it

Installation and Integration

The installation of the AXIS 5600+ and its integration into the network is performed using one of the methods listed below. All Axis client software is available from the AXIS Network Product CD and from the Axis Communications web site at <http://www.axis.com>:

- AXIS Print Monitor (Windows 95/98, NT, Me)
- AXIS NetPilot™ (NetWare - IPX)
- AXIS Print Utility for OS/2
- axinstall (UNIX)
- AXIS Gateway Configuration Utility
- AXIS Print Utility for Windows (Windows 3.1 and WfW)

Notes: The AXIS 5600+ can be installed in the Macintosh environment without any Axis client software.

The AXIS 5600+ can be installed in NetWare - Pure IP environments with the NetWare Administrator.

Configuration and Management

As the AXIS 5600+ comprises a built-in Web server, it can be configured and managed directly from its internal Web pages, using HTTP over TCP/IP. Access to the AXIS 5600+ via a Web browser offers you a platform-independent management tool that is suitable for all supported network environments.

In TCP/IP networks you can also use AXIS ThinWizard, which provides you with remote management capabilities for your AXIS ThinServer devices.

If your network does not support TCP/IP, you can use AXIS NetPilot to configure and manage the AXIS 5600+. AXIS NetPilot supports communication via IPX/SPX and NetBIOS/NetBEUI.

NetWare

Windows

OS/2

Macintosh

UNIX

Features and Benefits

NetWare

Reliability The AXIS 5600+ print server provides high performance and reliability combined with low power consumption. The electronic circuits are based on the AXIS ETRAX 100LX chip, which comprises an integrated 32 bit RISC processor and associated network controllers.

Windows

Flexibility The AXIS 5600+ supports printing in all major computer systems and environments, including five different print methods in the TCP/IP environment. The integrated IPP (Internet Printing Protocol) function allows for printing over the Internet.

OS/2

Speed The AXIS ETRAX 100LX chip has been specifically designed for LAN products and benefits users with a faster throughput than a direct PC-to-printer connection. With a sustained data throughput of more than 1 Mbyte per second, the AXIS 5600+ is fast. High speed Centronics communication such as ECP, Hewlett-Packard Fast Mode, High Speed and IBM Fast Byte is supported.

Macintosh

Easy to Install Using the available Axis installation tools, you can install the AXIS 5600+ into any of the supported networking environments in just a few minutes.

UNIX

Security You can assign passwords to restrict both login and printer access.

Monitoring The AXIS 5600+ internal Web pages allow you to continuously monitor printer status.

AXIS NetPilot software allows you to monitor printer status. AXIS Print Monitor can be configured to display pop-up messages that show the status of peer-to-peer print jobs.

The AXIS 5600+ supports SNMP for remote monitoring.

Futureproof You can upgrade the AXIS 5600+ firmware over the network. This allows you to quickly update and enhance the operational features of your AXIS 5600+ when new print server software becomes available. All software updates are free of charge.

Language Support The AXIS 5600+ internal web pages can be displayed in English, French, German, Japanese and Spanish. The default language is English.

NetWare

Windows

OS/2

Macintosh

UNIX

Preface

Thank you for purchasing the AXIS 5600+ print server. This product has been developed to connect your printers anywhere in your network, allowing all network users access to the shared printer resources.

About this manual

This manual provides introductory information as well as detailed instructions on how to set up and manage the AXIS 5600+ in various network environments. It is intended for everyone involved in installing and managing the AXIS 5600+. To fully benefit from the manual, you should be familiar with basic networking principles.

This manual is applicable for the AXIS 5600+, with firmware release 6.34 or later.

About Axis

Axis Communications is dedicated to providing innovative solutions for network-connected computer peripherals. Since the start in 1984, it has been one of the fastest growing companies in the market and is now a leader in its field.

ThinServer™ Technology

enables Axis' products to act as intelligent file server independent ThinServer devices. A ThinServer device is a network server which includes "thin" embedded server software capable of simultaneous multiprotocol communication, scalable RISC hardware and a built-in Web server which allows easy access and management via any standard Web browser. The ThinServer technology makes it possible to connect any electronic device to the network, thus providing "Access to everything".

Today, Axis Communications offers the following major ThinServer product lines:

Mobile Access by Axis

The *Bluetooth* Access Point from Axis is part of a family of network access solutions that create local "hot spots" of high-speed wireless connectivity areas. These areas provide a wireless communications link to local networks and the Internet for mobile devices equipped with Bluetooth wireless technology, an industry supported technology that provides a low-cost means for supporting short-range wireless communications between portable devices. Axis provides solutions that scale from network access devices to larger, more advanced systems to meet the range of needs for creating new mobile networks and services.

Network Print Servers

offer a powerful and cost-efficient method for sharing printer resources in your network. They connect to any standard printer, featuring high performance, simple management and easy upgrading across the network. The print servers are available in Ethernet, Fast Ethernet and Token Ring versions.

IBM Mainframe and S/3x – AS/400 Print Servers and Protocol Converters

include a wide range of LAN, coax and twinax attached print servers for the IBM host environment. By emulating IBM devices, these servers provide conversion of the IPDS, SCS and 3270DS data streams to the major ASCII printer languages.

Network Attached CD/DVD Servers

provide a flexible and cost-efficient solution for sharing CD-ROMs, DVD-ROMs and other optical media across the network. They are available in Ethernet, Fast Ethernet and Token Ring versions.

Network Camera Servers

provide live images using standard Internet technology, thus enabling access to live cameras via any standard Web browser. They offer a perfect solution for remote surveillance over the Internet; their sharp

images can bring life into any web site. These servers support Ethernet as well as PSTN and GSM phone lines.

Network Document Servers

enable easy distribution of paper-based information across workgroups and the enterprise. By sending scanned documents to your destination via the Internet/intranet, you will reduce your faxing/mailing costs, as well as save time, thus improving your organization's efficiency.

Support services

Should you require any technical assistance, please contact your Axis dealer. If your questions cannot be answered immediately, your Axis dealer will forward your queries through the appropriate channels to ensure you a rapid response.

If you are connected to the Internet, you can find on-line manuals, technical support, firmware updates, application software, company information, on the addresses listed below.

<http://www.axis.com/techsup/>

Product Overview

Package Contents

Verify that nothing is missing from the print server package by using the check list below. Please contact your dealer if anything should be missing or damaged.

☐ AXIS 5600+ Print Server

Important! There are **two** different versions of this product depending on the hardware platform. To determine which version you have, please check the product number located on the underside label of the AXIS 5600+:

version 1 - 0129-xxx-01

version 2 - 0129-xxx-02

☐ Power Supply:

Product		AXIS 5600+ version 1	AXIS 5600+ version 2	
Power supply		AXIS PS-D	AXIS PS-H*	AXIS PS-F*
Model		A41208	SA120A-0530x-C	SA10-0515x
Part nos	Australia	14255	19111	18428
	Europe	14233	19108	18424
	UK	14234	19109	18425
	USA	14253	19110	18426
	Japan	14254	19110	18427
	Korea	18430	19112	

*AXIS PS-H and AXIS PS-F can both be used for AXIS 5600+ version 2.

☐ AXIS Network Product CD, rev. 1.0 or higher

☐ AXIS 5400+/AXIS 5600+ Quick Installation Guide, rev. 1.3 part no: 19117

Optional accessories

☐ Parallel printer cable, part no: 13360

☐ Serial printer cable, part no: 13281

AXIS Network Product CD

NetWare

The AXIS Network Product CD includes the latest Axis utilities software, print server firmware, user documentation, etc. It is compatible for use within all the supported Axis computing environments.

Windows

Start-up procedures
for Windows

The AXIS Network Product CD starts automatically from a local CD drive on **Windows 95/98, NT, 2000 and XP** platforms.

Windows 3.1 users need to navigate to the CD root directory and click on the *setup31.exe* file from within the Windows File Manager.

OS/2

Start-up procedures
for UNIX, OS/2
and MacOS

Using your preferred file manager application, navigate to the CD root directory and click *index.htm*

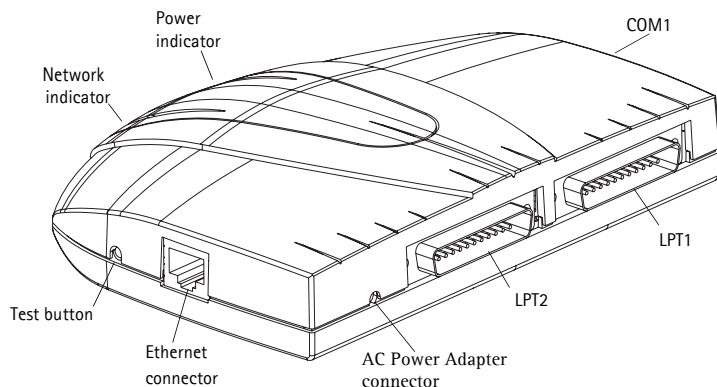
Macintosh

Note: The AXIS Network Product CD contains free Adobe Acrobat Reader software.

UNIX

AXIS 5600+ Physical Description

AXIS 5600+ (version 2)



In AXIS 5600+ version 1, LPT1 and LPT2 have switched places.

To determine which print server version you have, please check the product number located on the underside label of the AXIS 5600+:

version 1 - 0129-xxx-01

version 2 - 0129-xxx-02

AXIS 5600+ Firmware The AXIS 5600+ has internal software which is also referred to as **firmware**. You can easily upgrade your AXIS 5600+ by downloading free firmware from the Axis website: <http://www.axis.com>

Network Connectors The AXIS 5600+ is designed for 10 Mbps Ethernet and 100 Mbps Fast Ethernet networks and connects to the network via a twisted pair category 5 cable (10baseT and 100baseTX) or better. The AXIS 5600+ is equipped with an autosensing function that detects the speed of the local network segment and varies the speed of its data communication accordingly, to either 10 Mbps or 100 Mbps.

Printer Ports The AXIS 5600+ print server is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data can be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

Test Button The test button is used for:

- Printing a test page to check the connection to the printer.
- Printing the parameter list showing all the AXIS 5600+ settings.
- Resetting the AXIS 5600+ parameters to the factory default settings.

Refer to *Appendix - Test Button*, on page 176, for more information about the test Button.

Network Indicator The network indicator flashes to indicate network activity.

Power Indicator The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 5600+ or its power supply.

Basic Installation

Getting Started

After you have verified that no items presented in *Package Contents*, on page 15, are missing, you are now ready to install your AXIS 5600+.

Follow the instructions below to install the AXIS 5600+:

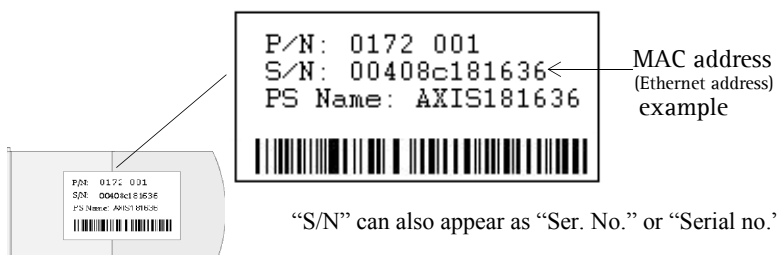
1. Start by connecting the AXIS 5600+ to your network and printer as described in *Connecting the Hardware*, on page 20.
2. Continue with *Assigning an IP address*, on page 22.
3. Proceed to the *Installation Tools*, on page 36, where you will find further information about making network printers ready for use.

Connecting the Hardware

Follow the instructions below to connect a printer to the network via the AXIS 5600+ print server.

Caution! The AXIS 5600+ external power supply you are using must be marked with the correct voltage! Refer to *Package Contents*, on page 15.

1. Make sure that the printer is switched off and that the AXIS 5600+ external power supply is disconnected.
2. Locate the **serial number**, found on the underside label of the AXIS 5600+, and write it down. You will need this number later during the network configuration. **Example:** S/N: 00408c181cf0



3. Connect the printer to the LPT1, LPT2 or the COM1 port on the AXIS 5600+ using an appropriate printer cable.
4. Connect your AXIS 5600+ to the network using a twisted pair category 5 cable (10baseT and 100baseTX).
5. Switch on the printer. Your printer must be ready for use when you switch it on.
6. Connect the external power supply to the AXIS 5600+. The power indicator lights. If the network indicator starts to flash, the AXIS 5600+ is successfully connected to the network.
7. Press and release the test button on the AXIS 5600+ to print a test page. If the printer and the AXIS 5600+ are correctly connected, the AXIS 5600+ internal test page will be printed.

Notes: The test page includes a list of the print server's most important parameters, including IP address, Network Speed and firmware version number.

The AXIS 5600+ uses high speed Centronics Communication. For use with older printers not supporting high speed, this function can be disabled by using a standard Web browser. Please refer to *Section Management & Configuration*, on page 119, for more information.

Assigning an IP address

- Before you Start**
- If you have a DHCP server on your network, your print server will receive an IP address automatically. The IP address (Internet address) will then appear on the test page you printed during installation.
 - If you are not working in a DHCP network, you need to set the IP address of the print server manually. See the manual methods for setting an IP address on page 22.

System Privileges You need root privileges on your UNIX, Linux and Mac OS X system, or administrator privileges on a Windows NT server to:

- set the IP address using RARP, BOOTP, DHCP
- add an entry to the ARP table with the command 'arp -s'

Ethernet Address You need to know the Ethernet address of your AXIS 5600+ in order to assign an IP address to it. **The Ethernet address is based upon the serial number of your print server.** This means, for example, that an AXIS 5600+ with the serial number of 00408C100086, will have the corresponding Ethernet address of 00 40 8C 10 00 86. The serial number is located on the bottom label of the print server.

IP Address Unless you are assigning an IP address using DHCP or AutoIP, you must obtain an unused IP address from your network administrator.

Important:

DO NOT use the IP addresses used in the following examples when installing your AXIS 5600+. Consult your network administrator before assigning an IP address to your print server.

Methods for setting the IP Address

The IP address of your AXIS 5600+ can be set using the following methods, depending on your network operating environment:

The IP address is set **automatically** using these methods

Method	Network environments	See ...
DHCP	Windows NT/2000/XP, UNIX, NetWare 5, OS/2	<i>Set the IP Address using DHCP, on page 25</i>
RARP	UNIX	<i>Setting the print server's IP address using RARP in UNIX, on page 30</i>
BOOTP	UNIX, NetWare 5, OS/2	<i>Setting the print server's IP address using BOOTP in UNIX, on page 31</i>
Auto-IP	Windows 98/2000/XP,	<i>DHCP and Auto-IP, on page 33</i>

You must set the IP address **manually** with these methods

ARP/Ping	Windows 95/98/NT/2000/XP OS/2	<i>Setting the print server's IP address using ARP in Windows and OS/2, on page 26</i>
	UNIX	<i>Setting the print server's IP address using ARP in UNIX and Mac OS X, on page 28</i>
AXIS IP JumpStarter	Windows 95/98/NT/2000/XP	<i>Set the print server's IP address using AXIS IP JumpStarter, on page 34</i>
AXIS NetPilot	NetWare 5	<i>Assigning an IP address, on page 22</i>

Important:

- The ability to set the IP address with ARP/Ping will only be enabled the first 4 minutes after restarting the print server.
- The ARP and RARP methods operate on single network segments only, i.e. they cannot be used over routers.

Registering and Resolving Host Names

In order to register the host name of the AXIS 5600+ in networks with dynamic IP address settings, WINS (Windows Internet Name Service) and DDNS (Dynamic Domain Naming System) are supported. It is recommended that at least one of these methods should be used if you are setting the IP address of the AXIS 5600+ using DHCP.

The host name of the AXIS 5600+ is specified by the PS_NAME parameter. Refer to *Appendix The Parameter List*, on page 178

WINS host name rules

WINS only supports 15 character long host names. If your host name is longer than 15 characters, the AXIS 5600+ truncates the host name to 15 characters when registering with a WINS server. You can access the AXIS 5600+ using the host name that is registered on your WINS server. Refer to *Section Management & Configuration*, on page 119.

DDNS host name rules

DDNS supports 53 character long host names, but they can only consist of the characters 'A-Z', 'a-z' and '-'. If your host name consists of any other characters, they are converted to '-', when registering with a DDNS server. You can access the AXIS 5600+ using the host name that is registered on your DDNS server. Refer to *Section Management & Configuration*, on page 119.

If the host name matches another entry in the DDNS data base, the AXIS 5600+ will delete the entry before it can be registered. Therefore it is important not to use duplicate host names on your network.

Notes: The host name limitations conclude that if you want to register the same host name at a WINS server and a DDNS server, the host name should be no longer than 15 characters and it should only contain the characters 'A - Z', 'a-z' and '-'.

Refer to your system manuals or to your network administrator for instructions on how host name resolutions are performed on your system.

Set the IP Address using DHCP

Follow the instructions below to download the IP address using DHCP:

1. Edit or create a scope in the DHCP manager of the DHCP daemon. The entries included in this scope should contain the following parameters:
 - range of IP addresses
 - subnet mask
 - default router IP address
 - WINS server IP address(es) or DDNS server IP address(es)
 - lease duration
2. Activate the scope. The print server automatically downloads the DHCP parameters. If you are using WINS or DNS, you should include at least one WINS or DNS server IP address in the DHCP scope. Immediately after the IP address has been received, the print server registers its host name and IP address on the WINS alternatively DNS server. Refer to *Registering and Resolving Host Names*, on page 24 for more information. The print server can automatically download a customized *config* file from a TFTP server. Just add the name of the config file and the TFTP server's IP address to your DHCP scope. The *config* file is downloaded immediately after the print server receives its IP address.
3. You have now successfully set the IP address of your print server. Continue to *Installation Methods*, on page 35.

Note:

You have to restart the print server to download the IP address.

Setting the print server's IP address using ARP in Windows and OS/2

Start out with making sure that the IP address is available for use. The IP address **192.168.3.191** is used here as an example:

- Ping the IP address by opening a Command Prompt and writing:

```
ping 192.168.3.191
```

If the host returns `Reply from 192.168.3.191 ...` or a similar message, the IP address is already taken. You can obtain a new and unused IP address from your system administrator.

- Check that the IP address you want to use is not already taken and stored in the host's cache memory. Open a Command Prompt and write:

```
arp -a
```

If the host lists the IP Address followed by the Physical Address, then the IP address is in use.

You can remove the entry from the cache memory with the command:

```
arp -d 192.168.3.191
```

Follow the instructions below to set the IP address using arp/ping:

1. Open a Command Prompt and write:

```
arp -s <IP address> <Ethernet address>
ping -t<IP address>
```

Example:

```
arp -s 192.168.3.191 00-40-8c-10-00-86
ping -t 192.168.3.191
```

2. Without interrupting the "ping -t" loop, restart the print server by disconnecting and then re-connecting the power supply.
3. If the host returns `Reply from 192.168.3.191 ...` or a similar message, the IP address has been set successfully. Interrupt the "ping -t" loop by pressing CTRL+C on your keyboard.

If the host returns `Request time out...`

you need to perform a factory default on the print server and perform steps 1-3 above again.

See *Performing a factory default*, on page 32.

4. Log in to the print server's Web pages (see *Using a Web browser*, on page 120), select **Admin | Network Settings | Detailed View | TCP/IP** and define the **Default Router** and **Subnet Mask**.

You have now set the IP address of the print server. Continue to *Installation Methods*, on page 35.

Important:

- The ability to set the IP address with ARP and PING will only be enabled the first 4 minutes after restarting the print server.
- When you execute the ping command for the first time, you will experience a significantly longer response time than usual.

Setting the print server's IP address using ARP in UNIX and Mac OS X

Start out with making sure that the IP address is available for use. The IP address **192.168.3.191** is used here as an example:

- Ping the IP address by opening a Command Prompt and writing:

```
ping 192.168.3.191
```

If the host returns `Reply from 192.168.3.191 ...` or a similar message, the IP address is already taken. You can obtain a new and unused IP address from your system administrator.

- Check that the IP address you want to use is not already taken and stored in the host's cache memory. Open a Command Prompt and write:

```
arp -a
```

If the host lists the IP Address followed by the Physical Address, then the IP address is in use.

You can remove the entry from the cache memory with the command:

```
arp -d 192.168.3.191
```

Follow the instructions below to set the IP address using arp/ping:

1. Open a Command Prompt and write:

```
arp -s <IP address> <Ethernet address>
ping -t<IP address>
```

```
arp -s 192.168.3.191 00:40:8c:10:00:86
ping -t 192.168.3.191
```

2. Without interrupting the "ping -t" loop, restart the print server by disconnecting and then re-connecting the power supply.
3. If the host returns `Reply from 192.168.3.191 ...` or a similar message, the IP address has been set successfully. Interrupt the "ping -t" loop by pressing CTRL+C on your keyboard.

If the host returns `Request time out...` you need to perform a factory default on the print server and perform steps 1-3 above again.
See *Performing a factory default*, on page 32.

4. Log in to the print server's Web pages (see *Using a Web browser*, on page 120), select **Admin | Network Settings | Detailed View | TCP/IP** and define the **Default Router** and **Subnet Mask**.

You have now set the IP address of the print server. Continue to *Installation Methods*, on page 35.

Important:

- The ability to set the IP address with ARP and PING will only be enabled the first 4 minutes after restarting the print server.
- When you execute the ping command for the first time, you will experience a significantly longer response time than usual.
- If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address.
- The ARP command varies between different UNIX/Linux systems. Some BSD type systems expect the host name and node address in reverse order. Furthermore IBM AIX systems will require the additional argument `ether`.

Setting the print server's IP address using RARP in UNIX

Follow the instructions below to set the IP address using RARP:

1. Append the following line to your Ethernet Address table. This is typically located in the `/etc/ethers` file:

```
<Ethernet address> <host name>
```

Example:

```
00:40:8c:10:00:86 npsname
```

2. Update, if necessary, your host table and alias name databases, as required by your system.
3. If it is not already running, start the RARP daemon. This is typically performed using the `rarpd -a` command.
4. Restart the AXIS 5600+ to download the IP address.

Notes:

- If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.
- If you are using IBM AIX, you will probably not have access to a RARP daemon. If this is the case, you can use either the ARP or BOOTP methods instead.

Setting the print
server's IP address
using BOOTP
in UNIX

Follow the instructions below to set the IP address using BOOTP:

1. Append the following entry to your boot table. This is typically performed by editing the file: `/etc/bootptab`

```
<host name>:ht=<hardware type>:vm=<vendor magic>:\
:ha=<hardware address>:ip=<IP address>:\
:sm=<subnet mask>:gw=<gateway field>
```

Example:

```
npsname:ht=ether:vm=rfc1048:\
:ha=00408c100086:ip=192.168.3.191:\
:sm=255.255.255.0:gw=192.168.1.1
```

Notes: Enter the `ht` and `vm` fields exactly as shown in the example.

The `ha` field is the Ethernet address/node address and the `ip` field is the IP address of your AXIS 5600+.

The `gw` and `sm` fields correspond to the default router address and subnet mask.

If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.

2. If necessary, update your host table and alias name databases, as required by your system.
3. If it is not already running, start the BOOTP daemon. This is typically performed using the `bootpd` command.
4. Restart the AXIS 5600+ to download the IP address, default router address, and subnet mask.

The AXIS 5600+ can automatically download a customized config file from a TFTP server. Just add the name of the config file and the TFTP server's IP address to your boot table. The config file is downloaded immediately after the AXIS 5600+ receives its IP address.

Performing a factory default

Follow the instructions below to reset the AXIS 5600+ to the factory default settings. Please note that a factory default should be performed with caution!

All parameters except Node Address (NODE_ADDR), Internet Address (IP_ADDR) and DHCP enabled or disabled (DHCP_ENABLE.) will be reset.

1. Remove the Power Adapter to switch off the AXIS 5600+.
2. Remove the network cable.
3. Press and hold down the test button while you plug the Power Adapter back in. Continue to hold down the test button until the network indicator begins to flash at one-second intervals. This should take about 5 seconds.
4. Release the test button and wait until the network indicator flashes at least five times.
5. Press and hold down the test button again until the network indicator remains constantly lit.
6. Disconnect the Power Adapter.
7. Insert the network cable.
8. Restart the AXIS 5600+ by reconnecting the Power Adapter.

DHCP and Auto-IP Auto-IP is a tool for setting the IP-address of the print server in the absence of a DHCP server.

If you have a DHCP server running on your network, the AXIS 5600+ will receive an IP address immediately after you have connected it to the network. In the absence of a DHCP server, your AXIS 5600+ print server will automatically be assigned an IP-address through integrated Auto-IP. The Auto-IP function is enabled by default and does not require any configuration by the user.

IF YOU HAVE...	DHCP enabled in the print server	DHCP disabled in the print server
A DHCP Server in your network	YOU WILL GET...	YOU NEED TO...
	An IP address through DHCP	Set the IP address of the print server manually
No DHCP Server in your network	YOU WILL GET...	YOU NEED TO...
	An IP address through Auto-IP	Set the IP address of the print server manually

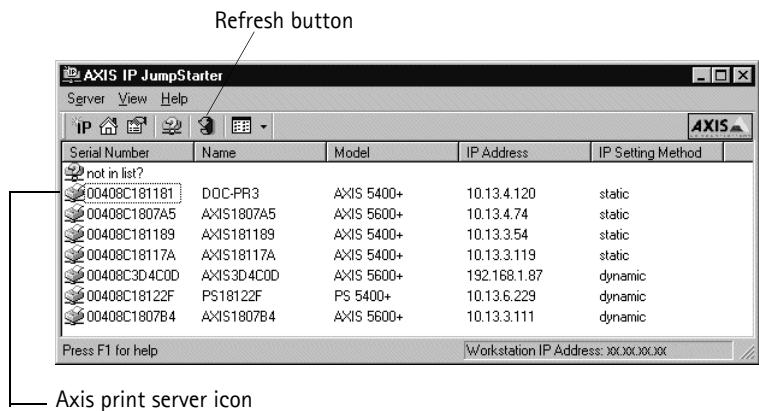
DHCP and Auto-IP Overview

Set the print server's IP address using AXIS IP JumpStarter

AXIS IP JumpStarter is an application that allows you to assign IP addresses to your Axis servers and find IP addresses already assigned to Axis servers.

1. Download and install AXIS IP JumpStarter. AXIS IP JumpStarter is available on the AXIS Network Product CD and from the Axis Web site.
2. For optimal use, open AXIS IPJumpstarter before you attach the print server to the network.

The software will scan your network for attached print servers. Select a print server from the serial number list



2. From the **Server** menu, select **Set IP Address**. The **Set IP Address** dialog appears.
3. Click the radio button that corresponds to your choice of IP setting method (static or dynamic using DHCP). When assigning a static IP address you also have to define **Subnet Mask** and **Default Gateway**.
4. Click **OK** to save your settings.
5. Enter the server root password (default=pass), and click **OK**. You have now finished the procedure of setting the IP address of the print server.

Installation Guide

Installation Methods The method of installation that you choose should be dictated by your printing requirements and your supported network environments. Select the appropriate installation method from the table below:

Environment	Network Configuration	Action
Windows	TCP/IP	See <i>Section Setting Up - Windows</i> , on page 37
	NetBIOS/NetBEUI	See <i>Section Setting Up - Windows</i> , on page 37
NetWare	NDPS (Pure IP)	See <i>Assigning an IP address</i> , on page 22 See <i>Setup using NDPS</i> , on page 54
	Standard NetWare (Pure IP)	See <i>Assigning an IP address</i> , on page 22
		See <i>Basic Queue-based printing over IP</i> , on page 87
	NDPS (IPX)	See <i>Setup using NDPS</i> , on page 54
	Standard NetWare (IPX)	See <i>Assigning an IP address</i> , on page 22
	Advanced configuration (IPX)	See <i>Assigning an IP address</i> , on page 22. Proceed with <i>Basic Setup with AXIS NetPilot</i> , on page 80
OS/2	TCP/IP	See <i>Assigning an IP address</i> , on page 22 Proceed with <i>Section Setting Up - OS/2</i> , on page 93
	NetBIOS/NetBEUI	See <i>Section Setting Up - OS/2</i> , on page 93
Macintosh	AppleTalk	See <i>Section Setting Up - Macintosh</i> , on page 99
UNIX	TCP/IP	See <i>Assigning an IP address</i> , on page 22
		Proceed with <i>Section Setting Up - UNIX</i> , on page 106

Installation Tools

The appropriate installation tools for the AXIS 5600+ are summarized in the following table:

Environment	Operating System Protocol	Installation Tool
Windows 2000/XP	TCP/IP	Windows' "Add Printer Wizard"
Windows 95/98/NT/Me	TCP/IP	AXIS Print Monitor
OS/2	TCP/IP	lprportd service method
	NetBIOS/NetBEUI	AXIS Print Utility for OS/2
NetWare	TCP/IP	NetWare Administrator
	IPX/SPX	AXIS NetPilot
Macintosh	AppleTalk	Chooser
UNIX	TCP/IP	axinstall

Recommended installation tools for the AXIS 5600+

Setting Up - Windows

Having connected the AXIS 5600+ to your network, as described in *Connecting the Hardware*, on page 20, this section describes how to install the AXIS 5600+ in the Windows environment. Identify your Windows platform and follow the installing instructions from the list below:

Windows Platform	Printing Protocol	Method:	See ...
Windows 2000, XP	TCP/IP	Use Windows 'Add Printer Wizard'	<i>TCP/IP printing in Windows 2000 and Windows XP, on page 38</i>
Windows 95, 98, Me	TCP/IP	Install AXIS Print Monitor software then use Windows "Add Printer"	<i>Installing TCP/IP printers in Windows 95/98/Me using AXIS Print Monitor, on page 40</i>
Windows NT	TCP/IP	Install AXIS Print Monitor software then use Windows "Add Printer"	<i>Installing TCP/IP printers in Windows NT using AXIS Print Monitor, on page 42</i>
Windows 2000	NetBIOS/NetBEUI	Install AXIS Print Monitor software then use Windows "Add Printer"	<i>Installing NetBIOS/NetBEUI printers in Windows 2000 using AXIS Print Monitor, on page 44</i>
Windows 95, 98, Me	NetBIOS/NetBEUI	Install AXIS Print Monitor software then use Windows "Add Printer"	<i>Installing NetBIOS/NetBEUI printers in Windows 95/98/Me using AXIS Print Monitor, on page 43</i>
Windows NT	NetBIOS/NetBEUI	Install AXIS Print Monitor software then use Windows "Add Printer"	<i>Installing NetBIOS/NetBEUI printers in Windows NT using AXIS Print Monitor, on page 46</i>
For LPD printing, see...			<i>Using the Microsoft LPD monitor with Windows 2000/XP, on page 47</i>
			<i>Using the Microsoft LPD monitor with Windows NT 4.0, on page 50</i>
			<i>Using the Microsoft LPD monitor with Window NT 3.5x, on page 51</i>

If you intend to use the AXIS 5600+ in a multiprotocol environment, you should also refer to the following sections:

Section Setting Up - NetWare, on page 53

Section Setting Up - OS/2, on page 93

Section Setting Up - Macintosh, on page 99

Section Setting Up - UNIX, on page 106

TCP/IP printing in Windows 2000 and Windows XP

Follow the instructions below to use the standard Windows method (LPR) for adding a printer in Windows 2000/XP:

Go to **Start | (Settings) | Printers (and Faxes)** and click the **Add (a) Printer** icon to start the **Add Printer Wizard**. Select the appropriate radio button:

- **Local printer** - If you are connecting directly to the print server (peer-to-peer printing), select **Local Printer**.

Make sure that you don't check the **Automatically detect and install my Plug and Play printer** checkbox! Click **Next**.

Click the **Create a new port** radio button and select **Standard TCP/IP Port** from the list.

Follow the **Add Standard TCP/IP Port Wizard** to complete the installation (You need to know the IP address of your print server and the model of the connected printer to install an appropriate driver).

- **Network printer** - If your print server has already been installed by the administrator on another computer, select **Network printer** and click **Next**. Follow the instructions in the **Add Printer Wizard** to complete the installation.

Note: The standard print method is LPR. If you wish to print using Raw TCP, right-click the installed printer in **Start | (Settings) | Printers (and Faxes)**. Select **Properties** and click **Port =>Configure Port** button. Click the **Raw** radio button. The default port number is 9100 for LPT1. Click **OK** to finish.

Next, set the HPJetadmin parameter to Yes in the print servers web interface: **admin =>General Settings=>HP JetAdmin Support =>Yes**. Click **OK**.

You are now ready to print using Raw TCP.

TCP/IP and NetBIOS/NetBEUI Printing from AXIS Print Monitor

AXIS Print Monitor Overview	AXIS Print Monitor is a tool for network printing in Windows 95, 98, NT environments. It allows AXIS Network Print Servers to be connected in the same simple fashion as a local printer port and once installed, is automatically initialized upon system startup. AXIS Print Monitor has been developed for peer-to-peer printing, allowing your print jobs to be sent directly to the print server.
Printing Environments	AXIS Print Monitor supports printing over NetBIOS/NetBEUI and TCP/IP. To enable printing in these environments, please ensure that the desired printing protocols are running on your client.
Peer-to-Peer Printing	The AXIS Print Monitor needs to be installed on each workstation to perform peer-to-peer printing. Once installed, the AXIS Print Monitor allows you to access all network printers, just as if they were connected directly to your workstation. Peer-to-peer printing offers the following benefits: • You can easily monitor the status of your printers, by enabling error condition pop-up messages. • You do not have to rely on a server.
Client-Server Printing	AXIS Print Monitor needs only to be installed on one server to perform client-server printing. The installed printers must be configured to be shared to allow clients to use them. Pop-up messages should not be enabled on the server as they will not be displayed on the client platforms. Note: AXIS Print Monitor can be used for DOS printing. Please refer to the AXIS Print Monitor's Readme file for instructions. The readme file is located in the same folder where AXIS Print Monitor is installed on your PC.

Installing TCP/IP printers in Windows 95/98/Me using AXIS Print Monitor

1. Make sure you have installed AXIS Print Monitor, you can download it free of charge from www.axis.com.
2. Start Windows Add Printer Wizard, select **Settings – Printers** from the **Start Menu** and double-click the **Add Printer** icon.
3. After clicking **Next>** in the first dialog, the Wizard asks you to select between Local Printer and Network Printer. You must select **Local Printer** as the AXIS 5600+ emulates a local printer port. Click **Next>**.
4. Choose the appropriate print driver for your printer. If the desired print driver already appears within the displayed manufacturer and model lists dialog, highlight your selection, click **Next>** and proceed directly to step 7. It is only necessary to perform steps 5- 6 if your printer does not feature in the model list.
5. Click the Have Disk... button. Insert the printer driver CD/diskette into the disk drive of your computer. If the floppy disk drive is selected automatically, click **OK**, otherwise type the letter of your disk drive and then click **OK**.
6. Select the desired printer you want to install from the diskette and click **Next>**.
7. Select an **AXIS Port** you wish to use and then click **OK**. Available AXIS ports appear as <internet address>_<port number> or <host name>_<port number>, e.g. 192.36.254.101_9900. Click the **Configure Port** button. If you wish to install a new TCP/IP port, select the Printers@TCP/IP Port and perform all procedures defined in steps 11-18.
8. Choose whether error condition pop-up messages are to be displayed by checking the box in the Configure AXIS Ports dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK** and **Next>**.
Note: The dummy port cannot be used for printing and consequently cannot be configured.
9. Enter an appropriate name for your printer and click **Next>**.
10. Choose whether you wish to produce a Test Page and click **Finish**.

You should continue with the following steps **only** if you wish to install a printer to a new TCP/IP port and have chosen **Printers@TCP/IP Port** previously in step 6.

11. The printer you have defined will now be displayed in the **Printers Folder**. Right-click the printer object and select **Properties** from the **Context** menu.
12. Click the details tab within the Properties page and then click **Add Port** to display the available monitors.
13. Click the radio button "other". Select **AXIS Port** and then click **OK**.
14. Select **RAW (TCP/IP)** as your choice of network protocol and click **OK**.
15. Enter the IP address or the host name of your print server and assign an appropriate port number. Click **OK**.
16. The TCP/IP port will then be added automatically to the list of available ports. Click **OK**.
17. You may now configure the port, as described in step 8.
18. Click the **Apply** button.

The Axis Printer Port is now installed.

Note: Even if the desired printer is available from the manufacturer and model lists, you are advised to use the print driver provided with the printer. This assures you of the latest driver software.

Installing TCP/IP printers in Windows NT using AXIS Print Monitor

1. Install the AXIS Print Monitor software on your Windows NT client, if you have not already done so. AXIS Print Monitor can be downloaded from the AXIS Network Product CD or from www.axis.com
2. To start the Add Printer Wizard, select **Settings – Printers** from the **Start** menu and double-click the **Add Printer** icon.
3. The Wizard asks you to select **My Computer** or **Network printer** server. Select **My Computer**, as the AXIS 5600+ emulates a local printer port. Click **Next>**.
4. Click **Add Port...** in the **Available ports** dialog, select **AXIS Port** and click **New Port...**
5. Select **Raw (TCP/IP)** as your choice of network protocol and click **OK**.
6. Enter the host name or IP address of the print server and the port number (9900 for LPT1, 9902 for LPT2 and 9901 for COM1) Click **OK**.
7. Close the **Printer Ports** window.
8. Click the **Configure Port...** button. Choose whether error condition pop-up messages are to be displayed by checking the box in the **Configure Axis Ports** dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK**. Continue the installation by clicking **Next>**.
If your printer model is available in the list proceed directly to step 11. Otherwise continue with the following step.

Note: Even if the desired printer is available in the **Manufacturers and Printer Models** list, you are advised to use the printer driver provided with your printer. This assures you of the latest driver software.

9. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.
10. Select the printer driver you want to install and click **Next>**.
11. Enter an appropriate name for your printer and click **Next>**.

12. Choose whether you want to share the printer with other network users and click **Next>**.
13. Choose whether you want to produce a test page and then click **Finish**.

**Installing
NetBIOS/NetBEUI
printers in
Windows 95/98/Me
using AXIS Print
Monitor**

Follow the procedures below to install Axis NetBIOS/NetBEUI printer ports on a Windows 95/98 workstation, using AXIS Print Monitor:

1. Install the AXIS Print Monitor software on your Windows NT3.5x client, if you have not already done so. AXIS Print Monitor can be downloaded from the AXIS Network Product CD or from www.axis.com
2. To start the Add Printer Wizard, select **Settings – Printers** from the **Start** menu and double-click the **Add Printer** icon.
3. After clicking **Next>** in the first dialog, the Wizard asks you to select Local printer or Network printer. Select **Local printer** as the AXIS 5600+ emulates a local printer port. Click **Next>**.
4. Choose the appropriate printer driver for your printer. If the desired printer driver appears in the displayed Manufacturers and Printer Models lists, highlight your selection, click **Next>** and proceed directly to step 7. It is only necessary to perform steps 5– 6 if your printer does not appear in the model list.

Note: Even if the desired printer is available in the **Manufacturers and Printer Models** list, you are advised to use the printer driver provided with the printer. This assures you of the latest driver software.

5. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.
6. Select the printer driver you want to install and click **Next>**.

Installing NetBIOS/NetBEUI printers in Windows 2000 using AXIS Print Monitor

7. Select the **AXIS Printer Port** from the **Available Ports** list. The port names appear as <name>.LP1 and <name>.LP2, where <name> is AX followed by the last six digits of the AXIS 5600+ serial number, e.g. AX100086 (default serial no.). Click the **Configure Port** button.
8. Choose whether error condition pop-up messages are to be displayed by checking the box in the **Configure AXIS Ports** dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK>**.
9. Enter an appropriate name for your printer and click **Next>**.
10. Choose whether you wish to produce a test page and click **Finish**.

Follow the procedure below to install Axis Printer Ports from a Windows 2000 workstation:

1. Install the AXIS Print Monitor software on your Windows 2000 client, if you have not already done so. AXIS Print Monitor can be downloaded from www.axis.com
2. To start the **Add Printer Wizard**, select **Settings – Printers** from the **Start** menu and double-click the **Add Printer** icon.
3. Start the installation by clicking **Next>**.
4. The Wizard asks you to select **Local Printer** or **Network printer server**. Select **Local Printer**. (Make sure that you don't check the **Automatically detect and install my Plug and Play printer** checkbox!)
5. Choose the **Create new port** radio button, select **AXIS Port** and click **Next>**
6. Select **NetBIOS/NetBEUI** as your choice of network protocol and click **OK**.
7. Select the **AXIS Port** you want to add. The ports appear as <name>.LP1 and <name>.LP2, where <name> is AX followed by the last six digits of the AXIS 5600+ serial number, e.g. AX100086 (default serial no.). Click **OK**.

8. Choose the appropriate printer driver for your printer. Click **Next>** and proceed directly to step 11. It is only necessary to perform steps 9-10 if your printer does not appear in the list.

Note: Even if the desired printer is available in the **Manufacturers and Printer Models** list, you are advised to use the printer driver provided with your printer. This assures you of the latest driver software.

Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.

9. Select the printer driver you want to install and click **Next>**.
10. Enter an appropriate name for your printer and click **Next>**.
11. Choose whether you want to share the printer with other network users and click **Next>**
12. Choose whether you want to produce a test page and then click **Finish**.

To configure the printer port proceed with the following steps:

13. Right-click on your installed printer and enter **Properties – Ports**.
14. Click the **Configure Port...** button. Choose whether error condition pop-up messages are to be displayed by checking the box in the **Configure Axis Ports** dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK**.
15. Click **Apply** and close the **Properties** window.

Installing NetBIOS/NetBEUI printers in Windows NT using AXIS Print Monitor

Follow the procedure below to install Axis Printer Ports from a Windows NT workstation:

1. Install the AXIS Print Monitor software on your Windows NT client, if you have not already done so. AXIS Print Monitor can be downloaded from www.axis.com
2. To start the Add Printer Wizard, select **Settings – Printers** from the **Start** menu and double-click the **Add Printer** icon.
3. *Windows 2000 only:* Start the installation by clicking **Next>**.
4. The Wizard asks you to select **My Computer** or **Network printer server**. Select **My Computer**, as the AXIS 5600+ emulates a local printer port.
5. Click **Add Port...** in the Available ports dialog, select **AXIS Port** and click **New Port...**
6. Select **NetBIOS/NetBEUI** as your choice of network protocol and click **OK**.
7. Select the AXIS Port you want to add. The ports appear as <name>.LP1 and <name>.LP2, where <name> is AX followed by the last six digits of the AXIS 5600+ serial number, e.g. AX100086 (default serial no.). Click **OK**.
8. Close the Printer Ports window.
9. Click the **Configure Port...** button. Choose whether error condition pop-up messages are to be displayed by checking the box in the Configure Axis Ports dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK**. Continue the installation by clicking **Next>**.
10. Choose the appropriate printer driver for your printer. Click **Next>** and proceed directly to step 12. It is only necessary to perform steps 10-11 if your printer does not appear in the list.

Note: Even if the desired printer is available in the **Manufacturers and Printer Models** list, you are advised to use the printer driver provided with your printer. This assures you of the latest driver software.

11. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.
12. Select the printer driver you want to install and click **Next>**.
13. Enter an appropriate name for your printer and click **Next>**.
14. Choose whether you want to share the printer with other network users and click **Next>**.
15. Choose whether you want to produce a test page and then click **Finish**.

Using the Microsoft LPD monitor with Windows

Using the Microsoft LPD monitor with Windows 2000/XP

This section describes how to set up a Windows 2000/XP server for LPR printing over the TCP/IP protocol, using the built-in Microsoft LPD monitor i.e. **Print Services for Unix**.

Note: See *Alternative Method for LPR Printing*, on page 49 for instructions on how to set up printing over LPR without installing Print Services for Unix.

Basic Setup If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing.

Preparing for LPR/LPD printing

Follow the following steps to prepare for LPR/LPD printing:

1. Open the **Control Panel**.
2. Click **Add/Remove Programs**.
3. Click **Add/Remove Windows Components**.
4. Check **Other Network File and print Services** and click **Details**.
5. Check **Print Services for Unix** and click **OK**.
6. Click **Next** and **Finish**.

7. Close **Add/Remove Programs** and the **Control Panel**.

Installing an LPD printer

Follow the instructions below to use the standard Windows method for installing an LPD printer in Windows 2000/XP:

Go to **Start | Settings | Printers** and click the **Add Printer** icon to start the **Add Printer Wizard**. Select the appropriate radio button:

- **Local printer** – If you are connecting directly to the print server (peer-to-peer printing), select **Local Printer** and click **Next**. Click the **Create a new port** radio button and select **LPR Port** from the list. Follow the wizard to complete the installation (You need to know the IP address of your print server and the port you are printing to i.e. PR1 or PR2).
- **Network printer** – If your print server has already been installed by the administrator on another computer, select **Network printer** and click **Next**. Follow the instructions in the **Add Printer Wizard** to complete the installation.

Notes: Make sure that the **Automatically detect and install my Plug and Play printer** checkbox is not checked

Press **F1** to access the Windows online help system if you need additional help when installing a printer/print server using this method.

Alternative Method for LPR Printing

If you wish to print over LPR but do not wish to install **Print Services for Unix** you can do this by changing the printing protocol after having installed the printer using the Standard TCP/IP method, see *TCP/IP printing in Windows 2000 and Windows XP*, on page 38 for instructions.

Once the printer is installed, follow these instructions to change the printing protocol:

1. Double-click the installed printer in **Start | Settings | Printers**.
2. Select **Properties** from the **Printer** menu.
3. Click the **Configure Port** button.
4. Click the **LPR** radio button and enter the queue name (pr1 or pr2).
5. Click **OK** to finish.

Using the Microsoft LPD monitor with Windows NT 4.0

This section describes how to set up a Windows NT Server v4.0 for LPR printing over the TCP/IP protocol, using the built-in Microsoft LPD monitor.

Basic Setup

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing.

Preparing for LPR/LPD printing

In the **Control Panel**, click the **Network** icon. If the TCP/IP Printing entry appears, then TCP/IP is already installed. Close the **Network** folder and skip to *Installing an LPD printer*, on page 49.

Follow the following steps to prepare for LPR/LPD printing:

1. Open the **Control Panel** and click the **Network** icon.
2. Select **Protocols**.
3. Add **TCP/IP Protocol**.
4. Select **Services**.
5. Add **Microsoft TCP/IP Printing**.

Installing a LPD printer

Follow the instructions below to install a printer for LPD printing:

1. Open the **Control Panel** and open the 'Printers' folder.
2. Click **Add Printer**, select **My Computer** and then go to **Next**.
3. Select **Add Port**. In Printer Ports, choose **LPR Port** and then click **New Port**.
4. In Add LPR compatible printer, enter the host name or IP address of the AXIS 5600+ as the print server to provide LPD.
5. Enter 'pr1', 'pr2', ... 'pr8' as the name of printer or print queue on that server.
6. Choose a suitable printer driver for your printer and go to **Next**.
7. Enter a printer name and go to **Next**.
8. Enter a share name.

9. Click **Next** and then **Finish**.

NetWare

Using the Microsoft LPD monitor with Window NT 3.5x

This section describes how to set up a Windows NT Server v3.5 and v3.51 for LPD printing over the TCP/IP protocol, using the built-in Microsoft LPD monitor.

Basic Setup

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. These procedures are defined in *Assign an IP address to the print server*, on page 23 and onwards.

Windows

Install the TCP/IP Protocol Stack

In the **Control Panel**, click the **Network** icon. If the TCP/IP Printing entry appears, then TCP/IP is already installed. Close the Network folder and continue with *Installing a printer* on the next page.

Follow these steps to install the TCP/IP protocol stack:

1. In the **Control Panel**, select **Network**.
2. Click **Add Software...**
3. Select **"TCP/IP Protocol and related components"** and then click **Continue**.
4. Check **"TCP/IP Network Printing Support"** and then click **Continue**.
5. Select path and then click **Continue**.
6. Click **OK** in the Network Settings dialog box.

OS/2

Macintosh

UNIX

Installing a Printer

Follow the following step-by-step instructions to install a printer for LPD printing.

1. In the **Control Panel**, click the **Print Manager**.
2. In the **Printer** menu, select **Create Printer**.
3. In the **Printer Name** field, type a name for your printer.
4. Choose a suitable printer driver for your printer.

5. In the **Print to** field, select **Other...**
6. In the **Print Destinations** dialog, choose **LPR Port** and then click **OK**. The **Add LPR Compatible Printer** dialog will now appear.
7. In the **Name or Address** field, type the IP address or the host name of your AXIS 5600+. If you use a host name, this must be defined in the *hosts* file on your server prior to the installation. This file is normally located in */winnt35/system32/drivers/etc/hosts*.
8. In the **Name of Printer on the Machine** field, type the logical printer number you want to use, e.g. pr1. Click **OK** and then **OK** to complete the installation.

Setting Up - NetWare

This section describes how to continue the installation of the AXIS 5600+ in the NetWare environment. Identify which transport protocol you are running on your network and which installation method you should use. Continue the installation by selecting the appropriate installing instructions from the table below:

Installation method	Transport protocol	Action
NDPS	TCP/IP	See "Setup using NDPS" on page 54.
	IPX/SPX	See "Installing the AXIS 5600+ in an NDPS environments" on page 54. <i>Public Access Printers</i> , on page 54 <i>Controlled Access Printers</i> , on page 60
iPrint	iPrint over LPR	See "Setup using iPrint" on page 74.and See "Install a printer using AXIS LPR Gateway Configuration Snapin" on page 78.
	iPrint over IPP	See "Setup using iPrint" on page 74.and See "Install a printer with AXIS IPP Gateway Configuration Snapin" on page 77.
Queue based printing	IPX/SPX	To install using the AXIS NetPilot Installation Wizard,
	Basic Configuration	See "Basic Setup with AXIS NetPilot" on page 80..
	IPX/SPX Advanced configuration	If you need a more advanced installation that is not covered by the AXIS NetPilot Installation Wizard, See "Advanced Installation using AXIS NetPilot" on page 83..
	Pure IP	See "Basic Queue-based printing over IP" on page 87.

See "NetWare Administration" on page 90. for information on Novell's administration tools.

If you intend to operate your AXIS 5600+ in a multi-protocol, mixed environment, you should also proceed to the other relevant sections in this manual, namely:

- Section Setting Up - Windows*, on page 37
- Section Setting Up - OS/2*, on page 93
- Section Setting Up - Macintosh*, on page 99
- Section Setting Up - UNIX*, on page 106



Setup using NDPS

The AXIS 5600+ supports Novell Distributed Print Services (NDPS). You can run NDPS over Pure IP (TCP/IP) or IPX/SPX.

Before the AXIS 5600+ can be installed, make sure that NDPS is installed and a Broker is loaded on your NetWare file server.

AXIS 5600+ uses the AXIS NDPS Gateway for printing in networks using either IP or IPX as transport protocols. The printer gateways are included with the NDPS software (from version 5.1 and up) and are automatically installed together with NDPS.

Notes:

- NDPS requires that you run NetWare 4.11 or higher. Pure IP is only supported by NetWare 5 or higher.

Installing the AXIS 5600+ in an NDPS environments

Having assigned an IP address to the AXIS 5600+ as described in *Assigning an IP address*, on page 22, you are now ready to install the AXIS 5600+ for NDPS printing. You can select to install the connected printers as public or controlled access printers. Follow the instructions below to install the AXIS 5600+ using NDPS:

Important:

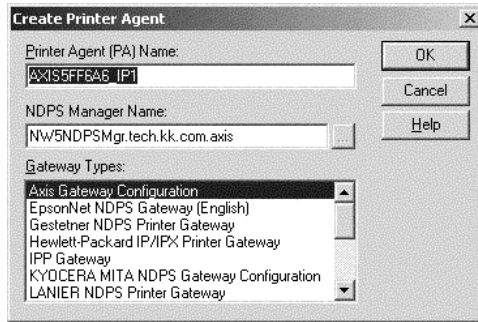
- The HP-JETADMIN parameter of the AXIS 5600+ must be set to **YES** in order for the communication between the AXIS 5600+ and the NDPS gateway to be enabled
To change this parameter, log in to the print server's web pages and choose:
Admin =>General Settings=>HP JetAdmin Support => YES.
- If you do not have an NDPS Manager object available, start out with creating one in the NetWare Administrator.

Public Access Printers

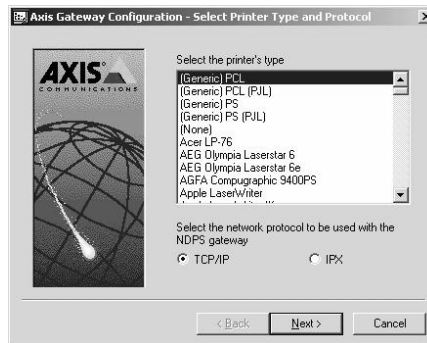
Follow these instructions to create a public access printer using the NDPS Manager object in your NetWare administrator utility:

1. Double-click on the NDPS Manager object you will be using to control the Printer Agents.
2. On the **Identification** page for the NDPS Manager, click the printer **Agent List** button. The **Printer Agent List** dialog will appear.
3. Click **New**. The **Create Printer Agent** dialog will appear.

4. Type a name of your choice in the **NDPS Printer Agent** field:



5. Select the **Axis Gateway** configuration in the **Gateway Type** window.
6. Click **OK**
7. In the **Select the printer's type** window, choose your printer. If you cannot find the printer, select an appropriate Generic one (PCL, PS, etc)



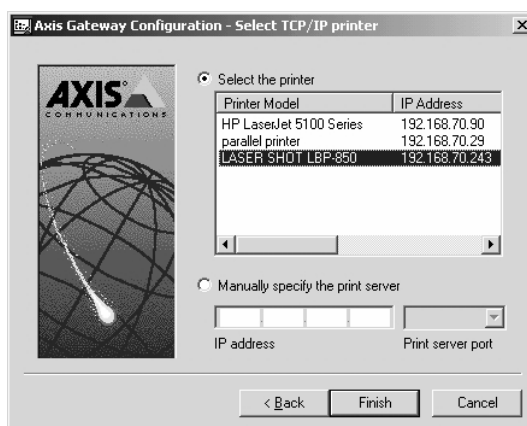
8. Select **TCP/IP (default)** or **IPX** as network protocol. (See Notes below).
9. Click **Next**.

10. You will find the print server in the next window with the printer attached on the connected port.
Depending on the transport protocol you used when you start the installation, the print server should appear as following:

- **TCP/IP Network protocol:**

IP Address and Port, i.e:

192.168.70.243 and LPT1



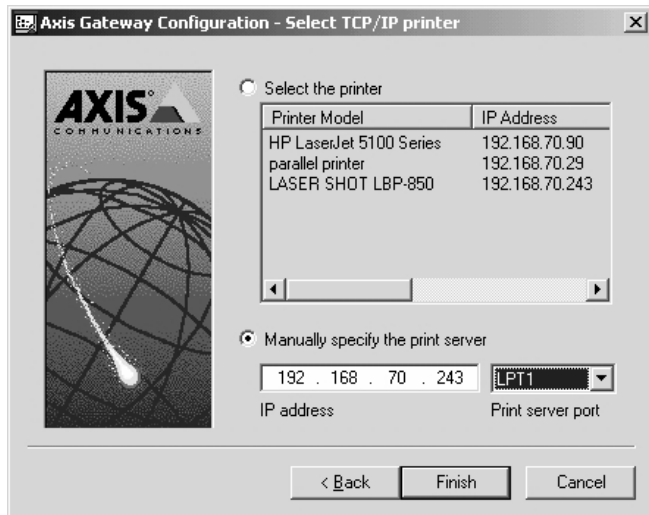
Only the ports with a connected printer show up in this window.
If the printer is not in the displayed print list, click **Manually specify the print server** and do the following:

Enter the Print Servers' IP address in the **IP Address** Field

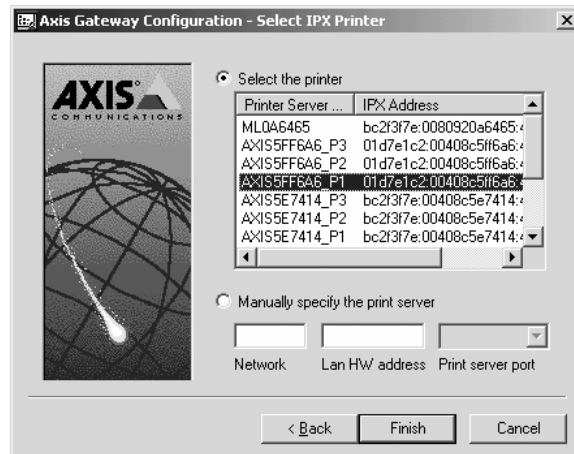
Choose a port in the **Print Server Port** field

i.e., **192.168.70.243** and **LPT1**

The valid values for the port numbers are **LPT1**, **LPT2** and **COM**.



- IPX Network protocol:**
 All the available ports will be presented, regardless if the printers are or not connected to those ports, i.e. AXIS5FF66A_P1, AXIS5FF66A_P2 and AXIS5FF66A_P3, corresponding to LPT1, LPT2 and COM ports.



The IPX Addresses for the above printers will appear as:
<IPX External Network Number>:<Print Server's HW
address>:<Socket Number>

that is: 01d7e1c2:00408c5ff6a6:400c

where 400c, 401c and 402c are the socket numbers
corresponding the LPT1, LPT2 and COM physical ports.

If the printer is not in the displayed print list, click **Manually
specify the print server** and do the following:

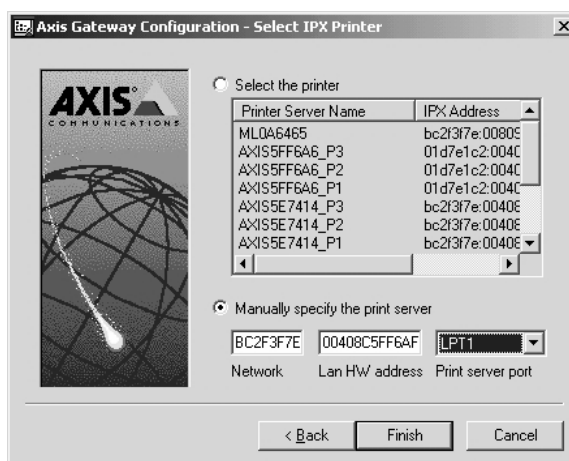
Enter the <IPX External Network Number> in the **Network** field.

Enter the <Print Server's HW address> in the **LAN HW address**
field.

Choose a port in the **Print Server Port** field,i.e.

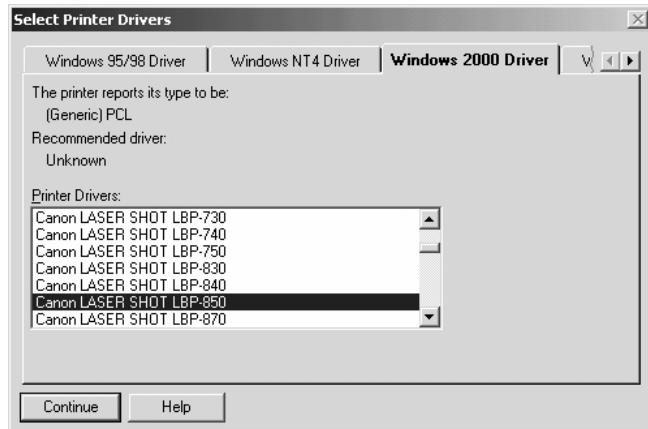
01d7e1c2:00408c5ff6a6 and LPT1

The valid values for the port numbers are LPT1, LPT2 and COM.

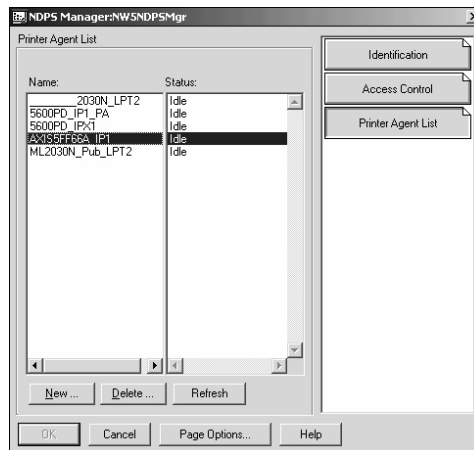


11. When done, select your printer and press **Finish**.

12. Next, select the printer drivers for each client operating system. (Windows 2000, Windows NT4 and Windows 95/98). These drivers will be automatically downloaded to users' workstations when they install this printer in the future.



13. Click **Continue** and **OK** in the next NDPS window. The new Printer Agent appears in the Printer Agent List window.



Check the Status: it should be **Idle**.

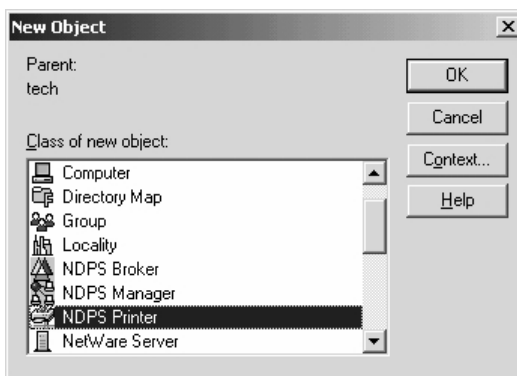
14. Press **Cancel** to close the NDPS Manager

To install the printer on the workstation, See "Installing an NDPS Printer on the Workstation" on page 67.

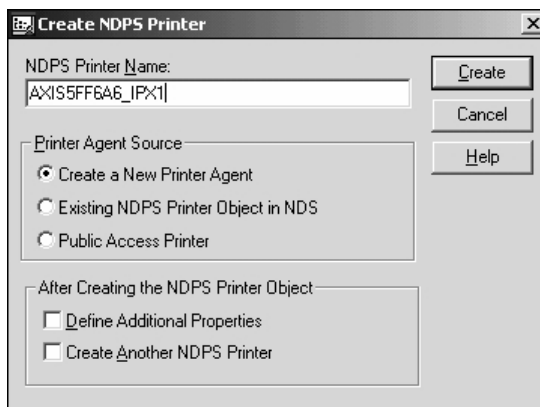
Controlled Access Printers

Follow these steps to create a controlled access printer as an object in the Directory Tree, using the NetWare administrator utility:

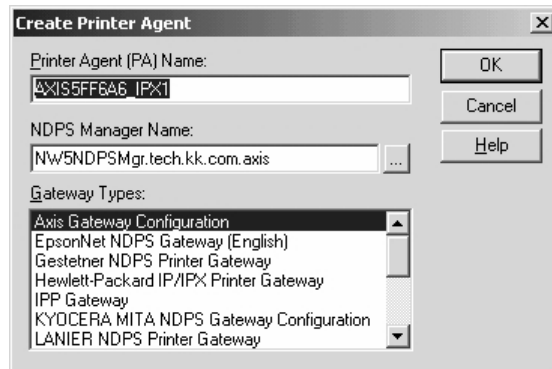
1. Log in as Admin.
2. Start the NW Admin utility on any Workstation (SYS:PUBLIC\WIN32\nwadmin32.exe).
3. Browse the context your NDPS Manager resides in.
4. From the **Object** menu, select **Create**. The New Object dialog appears.



5. Select NDPS Printer. The Create NDPS Printer dialog appears.

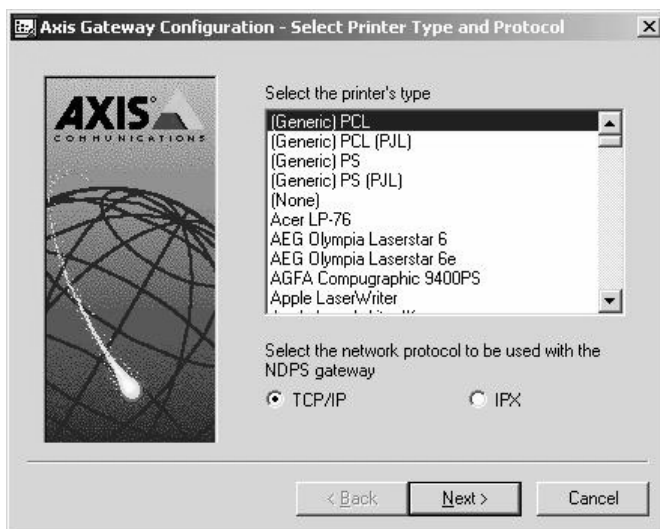


6. Type a name of your choice in the NDPS Printer Name field, i.e. **AXIS5FF66A_IPX1**
In the Printer Agent Source field, select the source of the Printer Agent. The following options are available:
 - **Create a New Printer Agent.** If you select this option, you are asked to select either the Novell Gateway or a third party Gateway.
 - **Printer Agent on Existing NDS Object.** Use a Printer already configured as a controlled access printer (NDPS Printer Object). If you select this option, a list of current NDPS Printer Objects in this container will be displayed from which you can select the one you want to use.
 - **Public Access Printer Agent.** Use an existing Printer Agent representing a Public Access Printer.
7. Select **Create a New Printer Agent** and click **Create** to display the Create Printer Agent dialog.
8. Confirm the Printer Agent name (default is the name of the new printer you are creating) and browse to select the NDPS Manager to which you want to assign it



9. Select **AXIS Gateway Configuration** in the Gateway Type field.
10. Click **OK**.

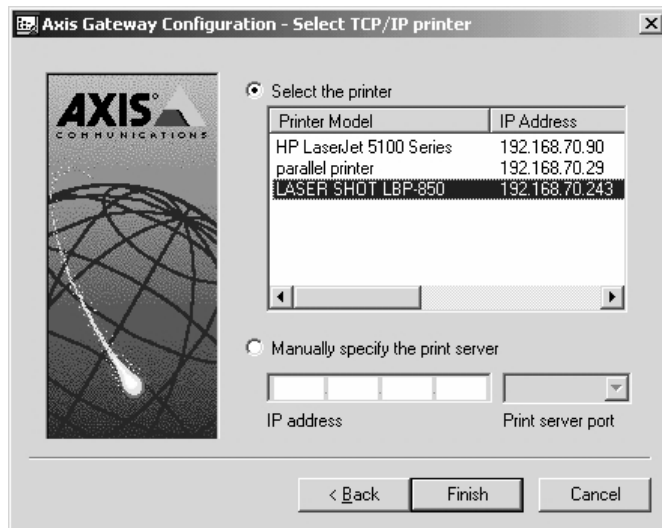
11. In the **Select the printer's type** window choose your printer. If you cannot find the printer, select an appropriate Generic one (PCL, PS, etc)



12. Select TCP/IP (default) or IPX as network protocol. (See Notes below).
13. Click Next.

14. You will find the print server in the next window with the printer attached on the connected port.
Depending on the transport protocol you used when you start the installation, the print server will appear as:

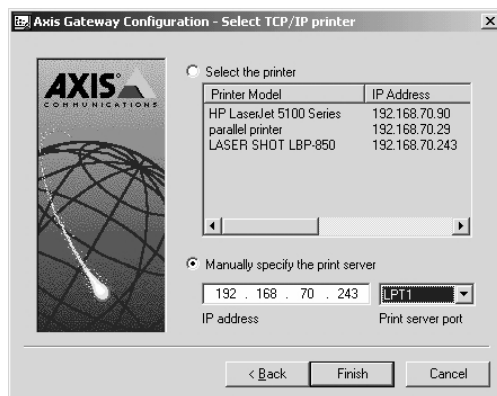
 - **TCP/IP Network protocol:**
IP Address and Port, i.e.
192.168.70.243 and LPT1



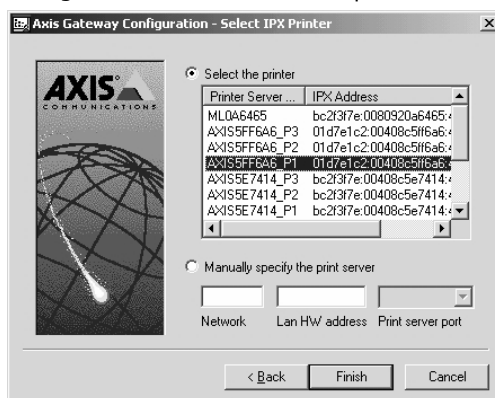
Only the ports with a connected printer show up in this window.

If the printer is not in the displayed print list, click **Manually specify the print server** enter the Print Servers' IP address in the IP Address Field.

Choose a port in the **Print Server Port** field i.e., 192.168.70.243 and LPT1. The valid values for the port numbers are, LPT1, LPT2 and COM.



- IPX Network protocol:**
 All the available ports will be presented, regardless if the printers are or not connected to those ports, i.e. AXIS5FF66A_P1, AXIS5FF66A_P2 and AXIS5FF66A_P3, corresponding to LPT1, LPT2 and COM ports.

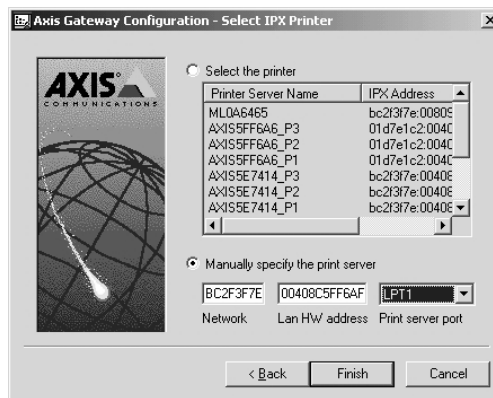


The IPX Addresses for the above printers will appear as:
 <IPX External Network Number>:<Print Server's HW address>:<Socket Number>

that is: 01d7e1c2:00408c5ff6a6:400c

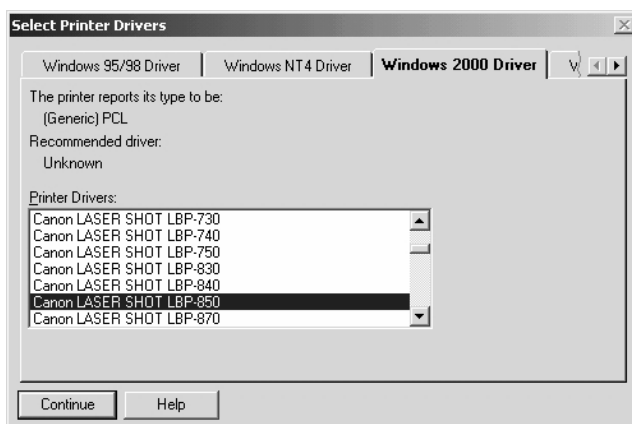
where 400c, 401c and 402c are the socket numbers corresponding the LPT1, LPT2 and COM physical ports.

If the printer is not in the displayed print list, click **Manually specify the print server** and enter the <IPX External Network Number> in the **Network** field.
Enter the <Print Server's HW address> in the **LAN HW address** field.
Choose a port in the **Print Server Port** field:
that is: 01d7e1c2:00408c5ff6a6 and LPT1.
The valid values for the port numbers are, LPT1, LPT2 and COM.



15. When done, select your printer and click **Finish**.

16. Next, select the printer drivers for each client operating system. (Windows 2000, Windows NT4 and Windows 95/98). These drivers will be automatically downloaded to users' workstations when they install this printer in the future.



17. Click Continue and OK in the next NDPS window. Your printer will appear as an NDS object in the Directory Tree and will offer a full range of network security options.

```

- [A] NW50FS_BROKER
- [S] NW5NDPSMgr
- [S] AXIS5FF6A6_IPX1
- [?] LDAP Server - NW50FS
- [?] LDAP Group - NW50FS
- [P] DNS-DHCP
- [S] nw5_subnet
- [S] nw5_pool
- [S] DHCP_NW50FS
- [Z] 73_168_192_IN-ADDR_ARPA
- [Z] nw5_private
- [Z] RootServerInfo
- [P] DNS_NW50FS
    
```

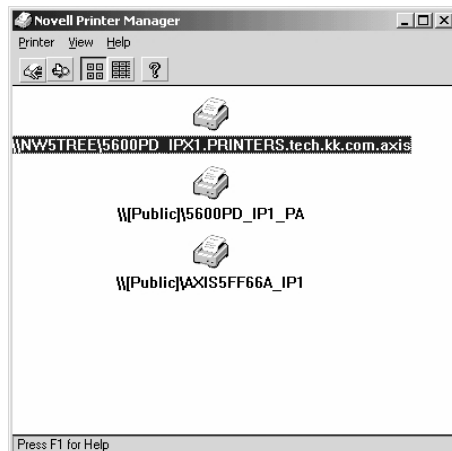
To install the printer on the workstation, See "Installing an NDPS Printer on the Workstation" on page 67.

Installing an NDPS Printer on the Workstation

To install the printer on a workstation, use either Novell Printer Manager (NetWare 5.1 only) or the Add Printer Wizard on the local workstation.

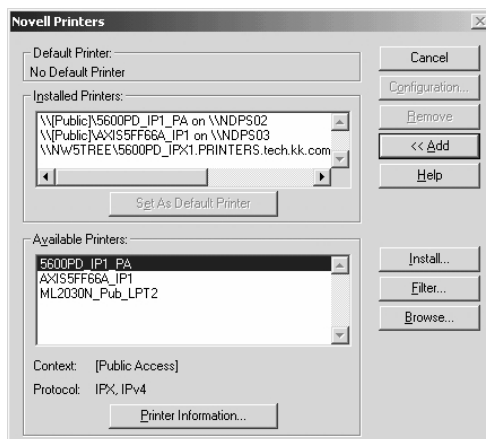
Using Novell Printer Manager

1. Log in as Admin.
2. On the any workstation, browse to <NW 5.1 File Server>\SYS:PUBLIC\Win32 and start Nwpmw32.exe (Novell Printer Manager). The Novell Printers dialog appears, displaying a list of installed Public or Controlled printers (if any printers have previously been installed on the workstation).

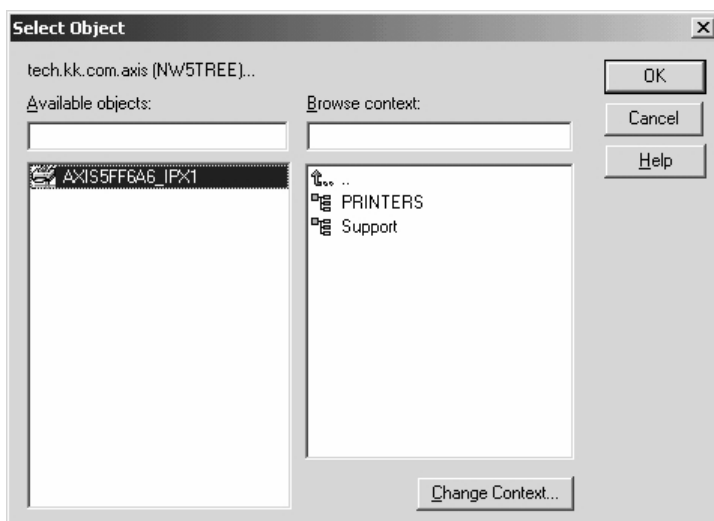


3. From the Printer manager's Printer pull down menu, select New.

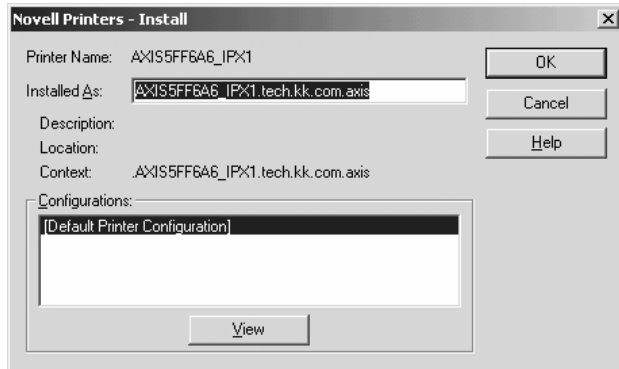
4. Click **Add**. A list of available printers appears.



5. The list of available printers shows the NDPS Public Access Printers on the network and the NDPS Controlled Access Printers in your current NDS context. To see the Controlled Access Printers in other context that you have rights to, click the **Browse** button and select your choice. Click **OK**.



6. Once selected, click **Install**. The Novell Printers – Install dialog appears.

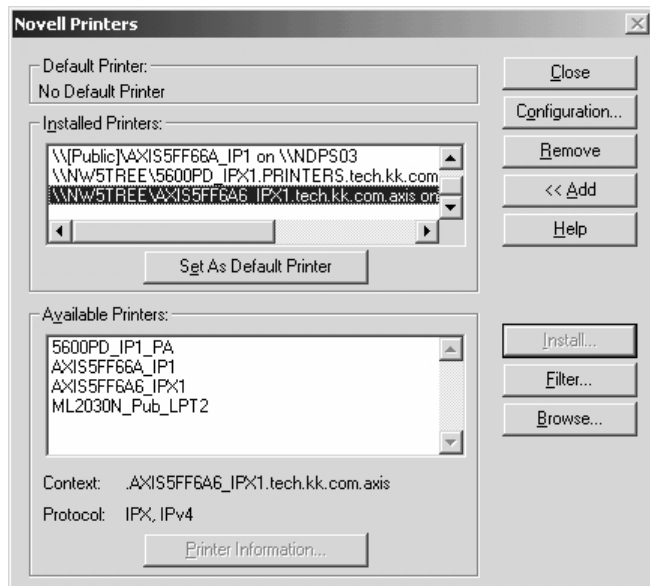


7. Click **OK**. The default driver for that printer is then automatically downloaded.

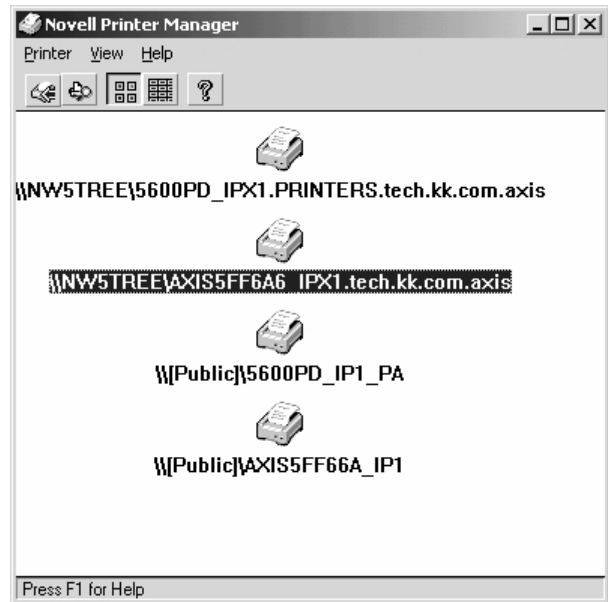
If the printer object does not have a printer driver associated with it, or a driver was not found, you will be prompted to either to choose from a list of printer drivers provided by NDPS or to provide a disk with the appropriate driver.

The Novell Printers dialog appears with the new printer, i.e.

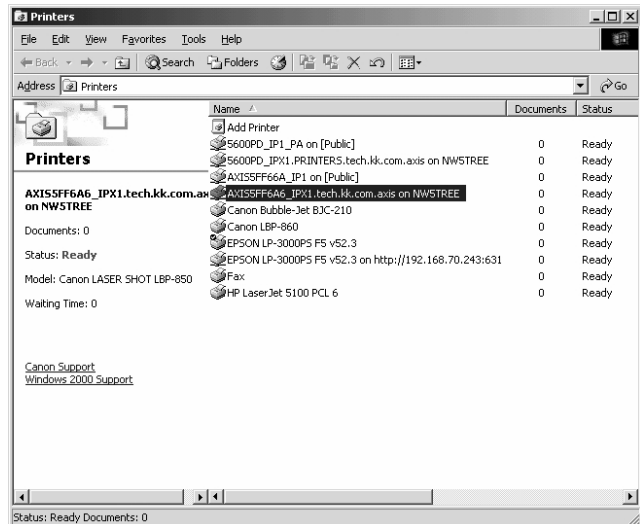
AXIS5FF6A6_IPX1 in the installed list.



8. Click **Close**.
In the Novell Printer Manager window the new installed NDPS printer appears with the name i.e. AXIS5FF6A6_IPX1 and is available for print jobs.

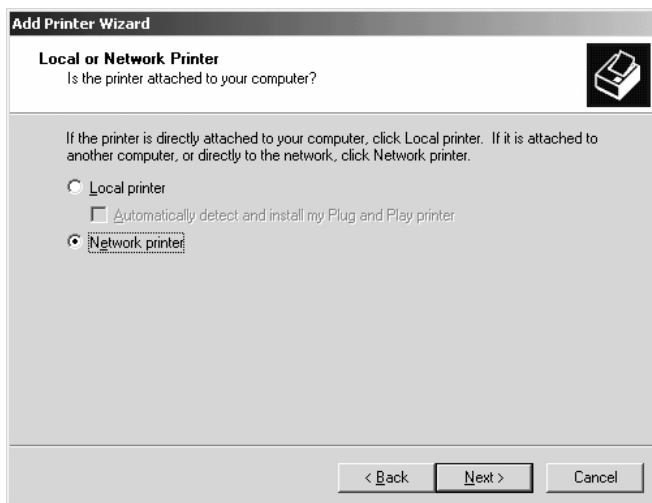


- Verify by clicking **Start - Settings - Printers** on the workstation.



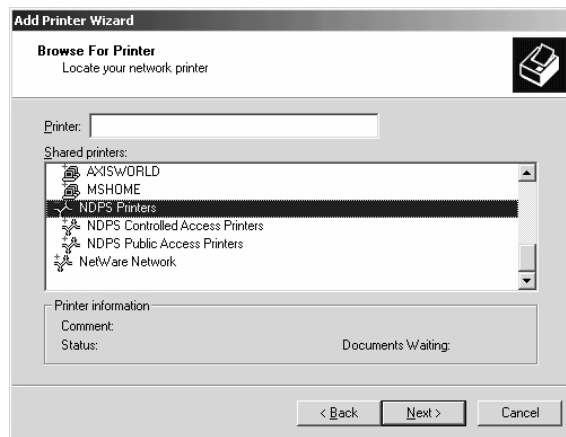
Using the Add Printer Wizard

1. Click **Start** on your workstation, select **Settings =>Printers**. There might be some differences regarding this menu depending of MS Operating System you are running.
2. Start the Add Printer Wizard on the workstation. The Add Printer Wizard dialog will appear. Click **Next**.
3. Select **Network printer** and click **Next**.



4. Click **Next** again in the **Locate Your Printer** dialog (Win2000/XP) or press the **Browse** button (Win9X)

5. Browse to the **NDPS Printers**. Expand either the **NDPS Controlled Access Printers** or the **NDPS Public Access Printers** folder, select your newly installed NDPS printer and follow the instructions.



When you have completed these steps, you are ready to start printing.

- Notes:**
- The Public Access print servers are immediately available for everyone on the network
 - The Axis Gateway Configuration Utility is an installation and configuration tool for NDPS printers in the NetWare environment.
The Axis Gateway will appear in NetWare 5.1 and later releases. You can download the Axis Gateway Configuration Utility for use with earlier versions of NetWare from www.axis.com.
 - To print using TCP/IP, Axis print server firmware 6.1 or later is required. In order to print using IPX/SPX, Axis print server firmware 5.51 or later is needed.

Setup using iPrint

iPrint is Novell's next generation of printing software that lets users print to and from all destinations.

A standard Web page displays available printers to the user. By clicking a printer, the iPrint client is installed (if not installed previously), the printer's driver is downloaded, and a printer is created in the user's Printer folder, enabling the user to send documents to the printer from any application on the desktop.

Before setting up iPrint printers, make sure that you meet all the iPrint Setup requirements. See the Novell iPrint Administration Guide for instructions on installing, configuring, and customizing iPrint.

AXIS Print servers can be installed as iPrint printers, either by using the Novell LPR gateway (LPR on IP) or the AXIS Gateway Configuration Snap-in for iPrint.

Axis provides two different Snap-ins for iPrint:

- **AXIS LPR Gateway Configuration**
- **AXIS IPP Gateway Configuration**

When you install Service Pack 6 (16 April 2003) for NetWare 5.1 or later and Service Pack 3 (16 April 2003) for NetWare 6.0 or later, the AXIS LPR Gateway Configuration will be automatically installed and configured on the NetWare Servers and ready for use.

The AXIS IPP Gateway Configuration Snap-in for NetWare 6.0 can be downloaded for free from www.axis.com. Follow the instructions below to install the AXIS IPP Gateway Configuration Snap-in for NetWare 6.0, if you want to add it in your iPrint environment.

Installing AXIS IPP Gateway Configuration Snap-in for NetWare 6.0

1. Download the free **axisIPP-snap-in.zip** file from www.axis.com and unzip it in a temporary directory.
2. Make sure the the NetWare Enterprise Web Server was previously installed on the server. Otherwise, install it.
3. Novell iPrint uses the NDPS infrastructure, so make sure that all the NDPS requirements have been met:
 - Make sure that the BROKER.NLM is loaded. If it isn't, type LOAD BROKER in the server console prompt and select the name of the Broker.
 - Make sure that the NDPS Manager object is created in the Novell Directory Services (NDS) tree. Refer to your Novell documentation for creating this object.
 - Make sure that the NDPSM.NLM is loaded. If it isn't, type LOAD NDPSM in the server console prompt and select the appropriate NDPS Manager.
4. Shutdown Tomcat and the NetWare Enterprise Web Server on the NetWare file server by executing the following commands:

Type "NSWEBDN" <Enter>

Type "TOMCAT33 -STOP" <Enter>

Type "NVXADMDN" <Enter>

5. Map the next available drive (i.e. G:) to the root of volume SYS on your NetWare server.
From the temporary directory where **axisIPP-snap-in.zip** has been unzipped, run the batch file **AxisIPP.bat** (default G:).
If the drive G: is not available, you have to edit the batch file and change the drive to next available one.
Check that each line in the batch file is executed without failure.
6. Restart Tomcat and the NetWare Enterprise Web Server on the file server by executing the following commands:
Type "TOMCAT33" <Enter>
Type "NVXADMUP" <Enter>
Type "NSWEB" <Enter>
7. Access the iManager web page on the NetWare server by opening the following URL:
<https://<IP address of NW server>:2200/eMFrame/iManager.html>
You have to authenticate.
8. Click on **iPrint Management** on the left pane and select **Create Printer**.
9. On the right pane, verify that the newly installed **AXIS IPP Gateway Configuration** is under the **Gateway type** drop-down menu.
If not, it may be necessary to restart the NetWare server.

Now you are ready to use the AXIS IPP Gateway Configuration for installing iPrint printers. You have to have **Administrator rights** to install the printers through iPrint.

Install a printer with AXIS IPP Gateway Configuration Snapin

1. Use an AXIS 5600+ and connect a printer to whatever port you want.
2. Connect the print server to the network.
3. Connect the power supply.
4. Start both the printers and the print server.
5. Log in as Admin.
6. Use a web browser and the local host URL to login into iManager on your NetWare server.
7. Open your browser to the following URL:
`https://<IP address of NW server>:2200/eMFrame/iManager.html`
You have to authenticate.
8. Click on **iPrint Management** on the left pane.
9. Click on **Create Printer**.
10. Choose a name of your choice for the printer
11. Choose the context where the printer will be installed.
12. Browse for the NDPS Manager and select it.
13. In the **Gateway Type** drop-down list, choose the **Axis IPP Gateway Configuration**. Press **Next**.
14. In the Printer URL, you may choose either the IPP version 1.0 format,:
`http://<IP address of your print server>:631/lptx`
or the IPP version 1.1:

`ipp://<IP address of your print server>/lptx`

where x is the port number. Replace lptx with COM, if using the COM port. Click **Next**.
15. Select default drivers for your printer. Click **Next** and **OK**.

Install a printer using AXIS LPR Gateway Configuration Snapin

1. Use an AXIS 5600+ and connect a printer to whatever port you want.
2. Connect the print server to the network.
3. Connect the power supply.
4. Start both the printers and the print server.
5. Log in as Admin.
6. Use a web browser and the local host URL to login into iManager on your NetWare server.
7. Open your browser to the following URL:
<https://<IP address of NW server>:2200/eMFrame/iManager.html>
You have to authenticate.
8. Click on **iPrint Management** on the left pane.
9. Click on **Create Printer**.
10. Choose a name for the printer.
11. Choose the context where the printer will be installed.
12. Browse for the NDPS Manager and select it.
13. In the **Gateway Type** drop-down list, choose the **Axis LPR Gateway Configuration**. Click **Next**.
14. Choose either the IP address or the DNS Name for your print server.
15. Under **Printer name**, select the physical printer port, i.e. LPT1, LPT2, COM, or logical printer port pr1-pr8 using the drop-down list. Click **Next**.
16. Select default drivers for your printer. Click **Next** and **OK**.

Installing the iPrint Printer on the Workstation

An iPrint printer can be locally installed on the workstation in two ways:

- Using the iPrint Client
- Using the MS Add Printer Wizard at the workstation.
See "Using the Add Printer Wizard" on page 72.)

Installing the iPrint Printer using the iPrint Client.

In order for users to use iPrint, they need to install the Novell® iPrint Client software and a printer. When a user selects a printer to be installed by iPrint, iPrint checks to see if the Novell iPrint Client software is installed and then installs it if necessary. Then the printer driver is downloaded and the printer is installed in the user's Printer folder.

In order for iPrint to work properly, the workstation should have the following:

- Windows 95/98/ME or Windows NT*/2000/XP
- Web browser with JavaScript enabled:
 - Microsoft Internet Explorer 5.0 or later
 - Netscape 4.76 (iPrint is not supported on Netscape 6)

The user should use the following iPrint url:
http://<IP address of your NW server>:631/IPP

1. From a Netscape or Internet Explorer browser, the user enters the provided URL.

A Web page displays a listing of available printers they can install and a link to install the client software.

The user should select **Install iPrint client software** to locally install the iPrint printers. If they try to install a printer before installing the iPrint client software, they are prompted to install the client software first.

If you associate a printer driver with a printer being installed, the driver is automatically installed on the user's workstation. If the

driver already exists, that driver is overwritten even if it is a newer driver.

After installing a printer, it is added to the user's **Printer folder**. The user can print to the printer by selecting it from any application.

Basic Setup with AXIS NetPilot

Follow the instructions available on the AXIS Network Product CD to install the AXIS NetPilot software on your computer. AXIS NetPilot runs on any of these Windows platforms; Windows 3.x, Windows 95, Windows 98, Windows NT, Windows 2000 or Windows for Workgroups.

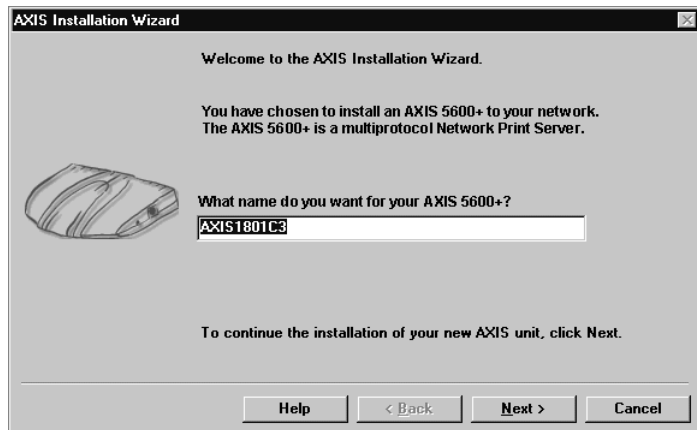
Starting the Installation

Follow the instructions below to install the AXIS 5600+ with AXIS NetPilot:

1. Start AXIS NetPilot by double-clicking the NetPilot icon, which is located in the folder where you installed AXIS NetPilot.
2. Locate the AXIS 5600+ in the 'New Axis Units' folder. Select it and click the **Install** button on the AXIS NetPilot toolbar. If your network is large, it could take a few seconds before the print server appears in the folder.

Choose the **with Installation Wizard** option and click **OK**. The

following screen appears:



The AXIS NetPilot Installation Wizard Main window

The AXIS NetPilot Installation Wizard guides you through the installation process. The following options are available:

Note: The number of options varies according to the number of environments you enable.

- | | |
|-------------------|--|
| Print Server Name | The default print server name consists of the characters 'AXIS' followed by the last six digits of the serial number. If you want to change the print server name, just type the new name in the available text field. |
| Environments | Choose which networking environments you want to configure the AXIS 5600+ for, i.e. NetWare, TCP/IP, Windows & OS/2 or Macintosh. If your network comprises various different platforms, you can enable any combination of environments. |
| NetWare NDS | Place NetWare Print Queues on a specific bindery server, or alternatively into an NDS Tree. |
| The IP address | Choose the method the AXIS 5600+ should employ for obtaining an IP address. DHCP, ARP, RARP, BOOTP and Auto-IP are supported. You |

can also select to set the IP address manually. Refer to *Assigning an IP address*, on page 22 for further information about setting the IP address.

Print Queues The AXIS 5600+ uses the print server name followed by the printer port as the default Print Queue names and print server port names. If you want to change the default printer queue names, just type the new names in the available text fields.

Environment	Default Names
NetWare	AXIS1A0003_LPT1_Q
	AXIS1A0003_LPT2_Q
	AXIS1A0003_COM1_Q
Windows & OS/2	AX1A0003.LP1
	AX1A0003.LP2
	AX1A0003.CM1
AppleTalk	AXIS1A0003_LPT1
	AXIS1A0003_LPT2
	AXIS1A0003_COM1

Default Print Queue Names and Print Server Port Names
for each operating environment.

Test Page The final user prompt in the Installation Wizard allows you to print a test page through NetWare. The test page displays the name of all the NetWare servers the AXIS 5600+ is connected to and shows the status of each connection.

Unless you want to connect or create additional printing queues, the installation for the NetWare environment is now completed.

- Notes:**
- The parameters entered during installation are not permanent; they can be altered at any time according to your network printing requirements.
 - No serious or permanent damage will be caused if you make a mistake during installation. If you find, at any time, that printing is not satisfactory, the parameters can easily be changed to tune the system to your requirements.
 - For information on advanced functions, please refer to the AXIS Network Print Server Technical Reference. You can download this or other technical information over the Internet by accessing the Axis Communications web site <http://www.axis.com/> or the AXIS Network Product CD.

Advanced Installation using AXIS NetPilot

Having installed your AXIS 5600+ print server in accordance with the basic installation procedures described in *Basic Setup with AXIS NetPilot*, on page 80, your AXIS 5600+ print server should now feature in the 'Network Print Servers' folder located in the AXIS NetPilot main window.

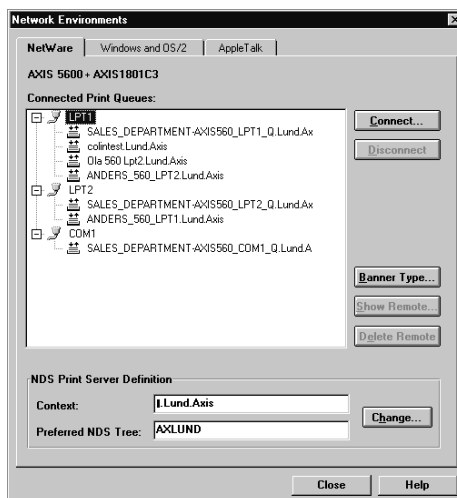
NetWare Network Environment Window

The NetWare Network Environment window allows you to connect additional print queues to your AXIS 5600+ as well as create new ones.

Follow the steps below to gain access to the NetWare Network Environment window:

1. Select the required Network Print Server from the 'Network Print Server' folder.
2. Choose **Network** from the Setup menu or click on the **Network** icon on the AXIS NetPilot's toolbar.

If you are not logged on to your NetWare file server, a dialog box will ask you to log on.



The AXIS NetPilot NetWare Network Environment window

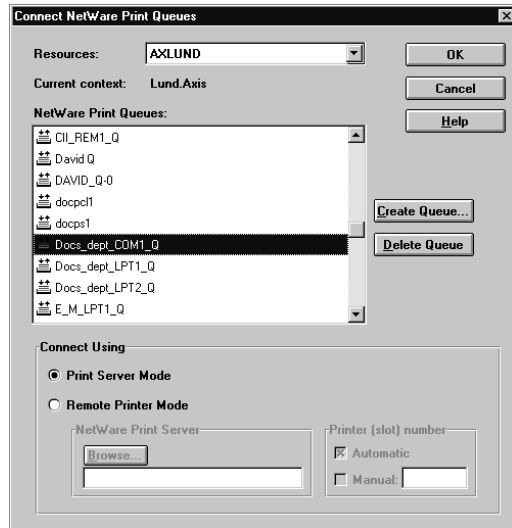
The AXIS 5600+ periodically updates the configuration by scanning the NDS tree or, in the case of NetWare versions 3.x, the designated file servers.

Connecting Print Queues

Follow the steps below to connect a print queue to the print server port:

1. Open the NetWare 'Network Environments' window.
2. Select the print server port you want to connect.

- Click the **Connect...** button. The **Connect NetWare Print Queues** window appears.



The AXIS NetPilot Connect NetWare Print Queues window

- Select the tree or server location of the print queue from the **Resources** box.
- Select an existing print queue to connect to the server port, or create a new print queue by clicking on **Create Queue...** If you have selected an existing queue, advance to step 8. Continue with step 6 only if you want to create a new queue.
- Type the queue name in the **Create Queue** dialog window. If you want to create a queue in the NDS tree you must also enter the name of the volume where the queue will be located. Click **OK**.
- Select the newly created queue from the queue list.
- Select **Print Server Mode** or **Remote Printer Mode**. If you selected **Print Server Mode**, advance directly to step 11, otherwise continue with step 9. Please refer to *Queue-based Printing Methods*, on page 89, for further information about the two printing methods.

9. Select an appropriate NetWare Print Server name, that will be associated with the AXIS 5600+ print server, by using the **Browse...** button.

Notes:

- You cannot type or edit the name manually.
- Make sure that you have PSERVER.NLM running if you selected Remote Printer Mode in step 8.

10. If you want to define a remote printer number slot manually, check the **Manual** box and type the desired number in the box.

11. Click the **OK** button to return to the Network Environments window.

Basic Queue-based printing over IP

Axis print servers with software version 6.0 or later allow users to print in a Pure IP environment using traditional queue-based printing (which usually uses the IPX transport protocol). Note that only NDS queue-based printing is supported.

In the NetWare Pure IP environment, you must use the NetWare Administrator to create the printer, print server and queue objects.

Installing the AXIS 5600+

Follow the instructions below to install the AXIS 5600+ in the NetWare Pure IP environment:

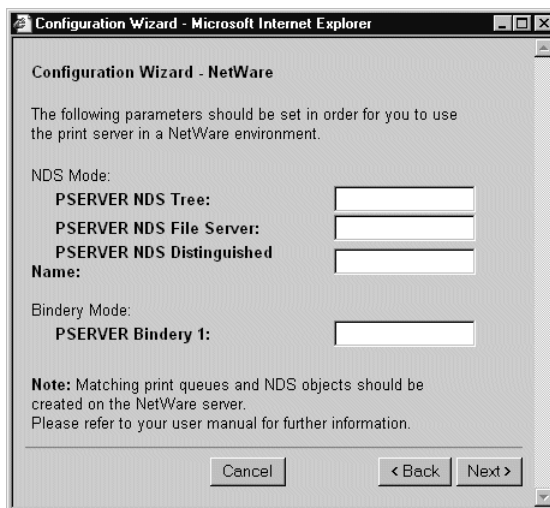
1. Start the Configuration Wizard from the **User mode** in the AXIS 5600+ Web interface.
2. Click your way through the Wizard until reaching the **NetWare** page.
3. Set the parameters on the NetWare page:

- PSERVER NDS Tree (example: NW5TREE)

or

PSERVER NDS File Server: (example: FILESERVERNAME)

- PSERVER NDS Distinguished Name:
(example: AXISXXXXXX.<context>, where <context> is the container where you want to create your print server)



Setting the PSERVER parameters in the AXIS 5600+ Web interface.

4. Use the NetWare Administrator to create the printer, print server and queue objects in the NDS tree and then link them together. The **Print Services Quick Setup (Non-NDPS)** utility can be used for this. Go to **Tools** in the **NetWare Administrator**.
5. Use the Add Printer Wizard on your work station to install the printer on your client. Note that only NDS queue based PSERVER printing is supported. When installing, choose **Network Printer** and browse to the queue you have just created. Alternatively, choose **Local Printer** and select the queue you have just captured.

Any configuration and management of the AXIS 5600+ can be performed from any standard Web browser. Please refer to *Using a Web browser*, on page 120.

If both the IPX and IP protocols are enabled in your network and the print server uses DUAL_STACK (enabled by default) as its network transport protocol, then IPX will be chosen. To force the print server to use the IP transport protocol, go to your print server's web interface and choose **Admin | Detailed View | NetWare** and change the NetWare Transport Protocol from DUAL_STACK to IP_ONLY. Save and exit when finished.

Important for firmware released prior to 6.34!

For print server firmware versions prior to 6.34:
 In order for the print server to log in using the IP protocol, RCONAG6.NLM has to be loaded loaded on a file server in a specified tree. If you have multiple trees, make sure that only the file server in the specific tree has RCONAG6.NLM loaded.

Note: Pure IP requires that you run NetWare 5 or higher.

Queue-based Printing Methods	The following overview explains the advantages and limitations of the two supported queue-based printing methods.
Print Server Mode	The AXIS 5600+ logs in to a file server(s) and repeatedly polls the print queues for print jobs. In this fashion, the AXIS 5600+ emulates a NetWare print server, which is a workstation running PSERVER. It provides high printing speed with low network load and is the recommended mode for medium to large sized networks. Each print server in PSERVER mode takes one NetWare user license.
Advantages	High performance: up to 1 Mbyte/s
Limitations	In bindery mode, this printing method requires a NetWare user licence for each AXIS 5600+ to file server link.

NetWare

Remote Printer Mode The AXIS 5600+ acts as Remote Printer for PSERVER.NLM running on the NetWare file server, or to a dedicated workstation running PSERVER.EXE. In this fashion, the AXIS 5600+ emulates a workstation running the NetWare remote printer software RPRINTER, or NPRINT. This mode is only recommended for small networks where the number of NetWare user licences is a major issue.

Windows

- | | | |
|-------|-------------|--|
| _____ | Advantages | • NetWare user licences are not required. |
| _____ | Limitations | • Lower performance, typically 20 - 70 kbytes/s for NLM.
• Higher network load. |

OS/2

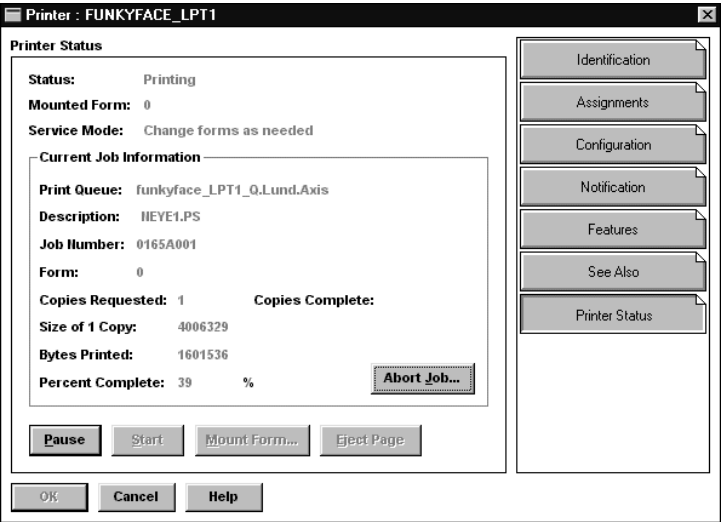
Using Novell Utilities After installing the AXIS 5600+ into the NetWare environment, you can manage your AXIS 5600+, using either Novell's NetWare Administrator, or PCONSOLE.

Macintosh

- | | | |
|-------|------------------------|--|
| _____ | NetWare Administration | Some useful features provided by the NetWare Administrator are described in more detail below: |
| _____ | Printer Status | The Printer Status menu, detailed below, shows the status of an active print job serviced by an AXIS 5600+ network print server. It displays detailed information concerning the active job including, Print Queue, print job description, size of print file, percentage of job completed, etc. You can also abort or pause the print job from this |

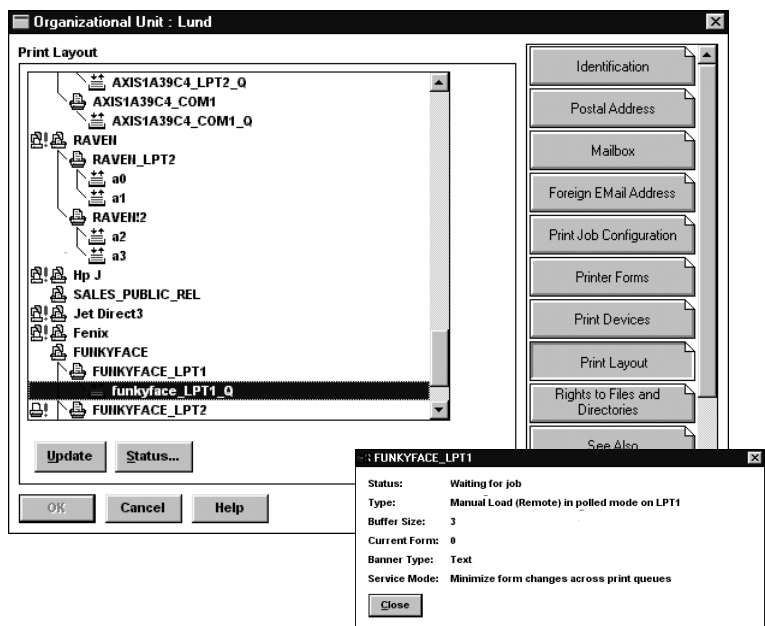
UNIX

menu.



NetWare Administrator Printer Status Menu

- Notification
- You can use the NetWare Administrator to enable or disable status notification messages for printers connected to the AXIS 5600+, e.g. Busy, Off-line, Out of paper, Paper jam, etc. You can also add or remove print job owners and administrators from the list of persons to be notified.
- Print Layout
- You can view installed AXIS 5600+ Network Print Servers and their relative print queues for any NetWare Organizational Unit. You can also display summary information by right-clicking on the printer object you want to examine.



NetWare Print Layout with corresponding information summary

Setting Up - OS/2

Having connected the AXIS 5600+ to your network, as described in *Connecting the Hardware*, on page 20, this section now describes how to set up your AXIS 5600+ for printing in the OS/2 environment.

Continue with the instructions presented in the table below:

Printing protocol	See ...
TCP/IP	<i>TCP/IP Printing, on page 94</i>
NetBIOS/NetBEUI	<i>NetBIOS/NetBEUI Printing, on page 95</i>

If you intend to operate your AXIS 5600+ in a multiprotocol environment, you should also proceed to the other relevant sections in this manual:

- Section Setting Up - NetWare, on page 53*
- Section Setting Up - Windows, on page 37*
- Section Setting Up - Macintosh, on page 99*
- Section Setting Up - UNIX, on page 106*

TCP/IP Printing

Having assigned an IP address to the AXIS 5600+, as described in *Assigning an IP address*, on page 22, you are now ready to install it for TCP/IP printing in the OS/2 environment. The AXIS 5600+ supports LPR Printing using the lprportd service method.

Installing the AXIS 5600+

Follow the instructions below to install the AXIS 5600+ using the lprportd service method:

1. Open the **OS/2 System** window, select **TCP/IP** and **TCP/IP Configuration**.
2. Select **Printing**, type a number, e.g. 3, in the **Maximum number of LPD ports** field. The Remote print server and Remote print server's printer fields should remain empty.
3. Select **Autostart**, select **lprportd**, click the **Autostart** check box and select **Detached**.
4. Exit and Save.
5. Restart your OS/2 client.

Creating a print queue

Continue with the instructions below to create a print queue:

1. Open the **Template** group. Create a new printer from Templates by dragging the **Printer** icon to the desktop with the right mouse button.
2. Select a printer driver and double-click a free **Output port**, for instance **\PIPE\LPD0**.
3. Enter the host name or the IP address of the AXIS 5600+ in the **LPD server** field.
4. Enter one of the AXIS 5600+ logical printer names, for example pr1, in the **LPD printer** field.

NetBIOS/NetBEUI Printing

The AXIS Print Utility for OS/2 is the tool to use for NetBIOS/NetBEUI printing in OS/2 environments.

AXIS Print Utility for OS/2 is available from the `software\prt_srv\utility\axpu\latest` folder located on the AXIS Network Product CD. It can also be downloaded from the Axis Communication web site <http://www.axis.com>. Install this utility now if you have not already done so.

If you want to change the default name or any of the AXIS 5600+ default parameters, you can do so using any standard Web browser or AXIS NetPilot from any Windows platform that is connected to your network, or WinOS/2 window under OS/2.

Refer to *Section Management & Configuration*, on page 119, for more information.

The AXIS Print Utility for OS/2 is not needed on the client platforms when using a client-server configuration.

About AXIS Print Utility for OS/2

AXIS Print Utility for OS/2 is an application for NetBIOS/NetBEUI printing in the OS/2 environment. Its allows you to:

- Install and maintain the AXIS 5600+ printer ports as OS/2 printer ports.
- Capture and monitor print jobs directed to the AXIS 5600+ ports.

Print jobs are directed through a spool directory located on your local hard disk (peer-to-peer mode), or on the file server (client-server mode). The printer port status of your AXIS 5600+ can be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problem condition.

Notes: The NetBEUI protocol must be active. If not, use MPTS/LAPS (LAN Server) or SETUP (LAN Manager) to activate it.

If you are using OS/2 version 2.x and wish to print through TCP/IP, we recommend that you use the IBM TCP/IP for OS/2 product. It supports the LPD and interactive FTP print methods.

Installing the AXIS 5600+

1. When AXIS Print Utility for OS/2 is running, click **Install** to install your AXIS 5600+. The ports appear in the list as <name>.LP1, <name>.LP2 and <name>.CM1, where <name> is AX followed by the last six digits of your print server serial number. e.g. AX100086.LP1.
2. Select the port that you want to install, then click **Install**.

Repeat this procedure for each server using the AXIS 5600+.

Note: The AXIS Print Utility for OS/2 must be running in order to print through your AXIS 5600+. It is strongly recommended that you modify the startup.cmd file, enabling AXIS Print Utility for OS/2 to automatically start when your client is re-booted. Instructions are available in the AXIS Print Utility for OS/2 Readme file.

Creating a Print Queue (OS/2 version 2.x and OS/2 Warp)

1. Double-click the **Templates** folder, then drag the **Printer** icon out to the Workplace Shell (or into a folder) while holding the right mouse button down.
2. Type a name of your choice in the Name field.
3. Select `\PIPE\<name>.LP1`, `\PIPE\<name>.LP2` or `\PIPE\<name>.CM1` from the Port list, and select a printer driver suitable for your printer from the Standard Printer list.
4. Click **OK** to confirm the printer definition.

Sharing the Print Queue

A print queue must be made a shared resource before it can be accessed from other clients or servers. The following three examples show how you can share your printer resources:

Open an OS/2 window and issue the following command:

```
NET SHARE <queue_name> /PRINT
```

Where `<queue_name>` is the name of the queue created on the previous side.

To share a printer resource when using OS/2 Warp with IBM Peer service, follow the steps below:

1. Click the right mouse button on the printer object.
2. Select **Share** and then **Start sharing**. In the dialog box, enter a Description.
3. Select the check-box **Start sharing at LAN workstation start-up**.
4. Click **OK**.

To share a printer resource when using LAN server 4.0, follow the steps below:

1. Open **LAN Server Administration**.
2. Open your domain and then **Resource Definition**.

3. Drag and drop a printer from the template.
4. Enter the Alias name, select a Server name and the previously created Spooler Queue Name.
5. Click **OK**.

The setup is completed and you can now print through your AXIS 5600+.

Setting Up - Macintosh

Having connected the AXIS 5600+ to your network, this section now describes how to set up your AXIS 5600+ for printing in Macintosh environments.

If you intend to operate your AXIS 5600+ in a multiprotocol environment, you should also proceed to the other relevant sections in this manual:

Section *Setting Up - NetWare*, on page 53

Section *Setting Up - Windows*, on page 37

Section *Setting Up - OS/2*, on page 93

Section *Setting Up - UNIX*, on page 106

Installation in Mac OS X

This section describes setting up your AXIS 5600+ for printing in the Mac OS X.

1. Select **Print Center** from the **Applications | Utilities** folder.
2. Click **Add Printer...**
3. From the Printer List dialog, select **LPR Printers using IP**.
4. Enter the IP address or Host name of your AXIS 5600+.
5. Select **Use Default Queue on Server** or enter LPT1 or LPT2 in the **Queue Name** field.
6. Select an appropriate printer driver for your printer or, if is not available in the list, select **Generic**. You can also browse for a printer driver on your computer or network by selecting **Other...** from the list.
7. Click **Add** to complete the installation.

Installation Using the Chooser Window

Basic Configuration Basic configuration in AppleTalk is performed simply by opening the Chooser window and selecting a printer.

You can change the default name of your AXIS 5600+ or any of default parameters by editing the *config* file. To access the *config* file from a Macintosh, you can use:

- any Java enabled Web browser
- FTP using MacTCP, Fetch or Anarchie

In order to use any of the methods, you must assign an IP address to the AXIS 5600+ as described in *Setting Parameters*, on page 104.

Choosing a Printer

Selecting a Printer The method for choosing a printer varies depending on which version of LaserWriter printer driver you are using.

- The LaserWriter 7.0 driver assumes that you use a standard PostScript driver, and cannot take advantage of any printer specific features.
- The LaserWriter 8.0 driver uses PPD files that contain printer descriptions. This gives you full control over any features your printer might have.

LaserWriter 7.0 Printer Driver

Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.
2. Click the **LaserWriter** icon.
3. If your network has more than one zone, click on the zone you want. If your network has no zones, this box does not appear.
4. Click the name of the printer you want. The default AXIS 5600+ printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 5600+ serial number, and <port> is LPT1, LPT2 and COM1 respectively. For example: AXIS100086_LPT1.
5. Click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the AXIS 5600+.

LaserWriter 8.0 Printer Driver

Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.
2. Click the **LaserWriter 8.0** icon.
3. If your network has more than one zone click on the zone you want. If your network has no zones, this box does not appear.
4. Click the name of the printer you want. The default AXIS 5600+ printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 5600+ serial number, and <port> is LPT1, LPT2 and COM1 respectively. For example: AXIS100086_LPT1.
5. Click '**Setup...**' and then '**Auto Setup**'. If the selected printer supports bi-directional printing and the appropriate PPD file is available, the installation is performed automatically and you can therefore proceed directly to step 7. If this is not the case, the PPD file must be selected manually, as described in step 6.

6. Choose the PPD file matching your printer, and click **'OK'**.
If your printer does not appear in the PPD file list, please contact your printer vendor. Use the Generic PPD if you do not need any printer specific features.
7. Click **'OK'**, and then click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the AXIS 5600+.

Autodetect Printer Type

The print server can automatically detect the type of printer you are using if you enable **Autodetect Printer Type**. The print server can then recognize Epson and Hewlett Packard InkJet printers. Most Epson and Hewlett Packard InkJet printers that have Mac OS printer drivers for network printing are supported. Without the Autodetect Printer Type function, the AppleTalk printer type has to be specified manually in the print server. For Epson InkJets it would be "EPSONLQ2" and for HP InkJets it would be "DeskWriter". If the print server does not recognize the connected printer, the default setting "LaserWriter" will be used as printer type. "LaserWriter" is the recommended setting to be used with all PostScript printers.

To enable **Autodetect Printer Type**, log in to your print server's Web interface and select **Admin | Network Settings | Detailed View | Macintosh | Auto Detect Printer Type | Yes**.

See the **Help** pages in the print server's Web interface for details.

Bi-directional support

The AXIS 5600+ allows the printer driver to communicate directly with the printer and consequently facilitates complete functional control over print jobs, e.g. automatic downloading of fonts not resident in the printer.

This functionality has backward compatibility with older printers and Macintosh computers, which means that the AXIS 5600+ can generate appropriate responses to Macintosh printer queries, when the connected printer does not support bi-directional communication.

Verifying the Setup You simply need to print a document from the Macintosh computer to verify communication to the chosen printer. The basic installation can be considered complete if the print test is satisfactory. The AXIS 5600+ is now ready to use.

Note: For information on advanced AppleTalk functions such as non-PostScript printer support, please refer to the Axis NPS Print Server Technical Reference on the AXIS Network Product CD.

BCP and TBCP You should specify if you want to enable or disable binary transfer of print data in the print server's web interface (**Admin | Network Settings | Detailed View | Macintosh | Binary Protocol for Printer (1, 2)**). By enabling binary transfer you reduce printing time, provided that the print job is sent as binary data to the print server. This is particular true when you are printing large bitmaps.

- **TBCP** enables the print server to use the TBCP (Tagged Binary Communication Protocol) to transfer print data to the printer. Select this alternative when using Postscript printers.
- **BCP** enables the print server to use the BCP (Binary Communications Protocol) to transfer print data to the printer. Select this alternative when using Postscript printers.
- **None** disables all binary transfers, select this alternative for all non-PostScript printers and for ASCII PostScript printing.

Notes:

- If you have have set the Auto-Detect Printer Type parameter to YES, the text output format will be chosen automatically (**Admin | Network Settings | Detailed View | Macintosh | Auto Detect Printer Type | Yes**).
- Some printers, e.g. Epson InkJet printers, can not be used when TBCP is enabled.

Setting Parameters

In AppleTalk, you can change a limited number of the parameters of the AXIS 5600+. You can:

- enable and disable binary data transfers for your printing
- select the type of binary transfer protocol to use
- specify the AppleTalk printer type
- set the IP address

However, by assigning an IP address to your AXIS 5600+, you have access to all of print server's parameters via any standard Web browser or via FTP. Refer to *Section Management & Configuration*, on page 119 for more information.

Example: The following example describes the how you set the AXIS 5600+ parameters in AppleTalk.

Important: DO NOT use the parameter values from this example when configuring your AXIS 5600+. You should select values that are appropriate for your printers and network settings.

Follow the instructions below:

1. Open the Chooser.
2. Select a network printer driver, any LaserWriter will do.
3. Select the printer port which name ends with "_CFG".
4. Close the Chooser.
5. Open a text editor, e.g. SimpleText.
6. Write a text file containing the parameters you want to set:

BINARY_TYPE_1.	:BCP
INT_ADDR.	:192.168.3.191
ATYPE_1.	:EPSONLQ2

Parameters that you do not want to set should be excluded from the text file. Refer to - *The Parameter List*, on page 178, for information about which values that are valid for each parameter.

7. Print the text file. The settings will be stored in the print server.
8. Open the Chooser and select the printer port you wish to use for printing documents.
9. Close the Chooser.

Note: The _CFG port disappears 60 minutes after the AXIS 5600+ has been powered on. If you want it to reappear, you must restart your AXIS 5600+.

Setting Up - UNIX

Having connected the AXIS 5600+ to your network, this section now describes how to set up your print server for printing in a UNIX/Linux environments.

If you intend to operate your AXIS 5600+ in a multiprotocol environment, you should also proceed according to one or more of the following sections, as appropriate to your network.

Section Setting Up - NetWare, on page 53

Section Setting Up - Windows, on page 37

Section Setting Up - OS/2, on page 93

Section Setting Up - Macintosh, on page 99

Recommended Print Tools

For printer configuration, *printtool* and *printconfig* are the most common. How they are invoked depends on which distribution and window manager you use.

AIX *SMIT* is the recommended printing tool. It contains an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `smi t` in a Terminal window, then click **Print Spooling**.

Debian *printtool* is the recommended printing tool. The program contains an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `printtool` in a Terminal window to start the graphical version.

HP UX *Sam* is the recommended printing tool. It doesn't provide an integrated printer driver list, nor printer detection functionality.

Instructions:

Type the command `sam` in a Terminal window, click **Printers and Plotters** and then click **Actions** and **Add_Remote Printer/Plotter**.

Mandrake *printerdrake* is the recommended printing tool. It contains an integrated printer driver list, but does not have printer detection ability.

Red Hat *printconf* is the recommended printing tool. The program contains an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `printconf-gui` in a Terminal window to start the graphical version.

You can also run `printconf` as a text-based application if you do not have the X Window System installed, or if you prefer the text-based interface. Log in as **root** (or use the command `su` to temporarily change to the root user), and type the command `/usr/sbin/printconf-tui` from a shell prompt.

Solaris 9 The printing tool is called *Printer Administrator*. This operating environment has an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `/usr/sadm/admin/bin/printmgr` in a Terminal window.

SuSE *YaST2* is the recommended printing tool. It contains a printer driver list as well as printer detection capability.

Instructions:

To start the Printer Configuration tool, select this from the Desktop:

YaST2 menu button (on the panel) | In Yast Control Center | Hardware

| Edit Printers

Notes:

- A versatile IPP client for UNIX/Linux is CUPS. It can be downloaded from the Common Unix Printing System's Web site at www.cups.org
- If you don't find your specific printer in your distribution, have a look at <http://www.linuxprinting.org/database.html>

Red Hat 7.3 *Printtool* has been replaced by **Printconf**. The utility maintains the `/etc/printcap` configuration file, print spool directories, and print filters.

Note: If you type `printtool` at a shell prompt, `printconf` will automatically start.

- | | |
|--------------|--|
| Invokation | <ol style="list-style-type: none"> 1. On the Gnome desktop, select the Main Menu button (on the Panel) => Programs => System => Printer Configuration to start the graphical version. 2. On the KDE desktop, select the Main Menu button (on the Panel) => Red Hat => System => Printer Configuration to start the graphical version. 3. Type the command <code>printconf -gui</code> at a shell prompt (for example, in an XTerm or a Gnome terminal) to start the graphical version. 4. You can also run <code>printconf</code> as a text based application if you do not have the XWindow System installed, or you just prefer the text based interface. To run it, log in as root (or use the command <code>su</code> to temporarily change to the root user), and type the command <code>/usr/sbin/printconf -tui</code> from a shell prompt. |
| Print Queues | <p>Five types of print queues can be configured with <code>printconf</code> in the Red Hat distribution:</p> <ul style="list-style-type: none"> • Local Printer • Unix Printer (lpd Spool) • Windows Printer (SMB) • Novell Printer (NCP Queue) • JetDirect Printer |

Important!

- Do not edit the `/etc/printcap` file. Each time the printer daemon (`lpd`) is started /restarted, a new `/etc/printcap` file is dynamically created.
- If you want to add a printer without using `printconf`, edit the `/etc/printcap.local` file. The entries in `/etc/printcap.local` are not displayed in `printconf` but are read by the printer daemon.
- If you upgrade your system from a previous version of Red Hat Linux, your existing configuration file is converted to the new format used by `printconf`. Each time a new configuration file is generated by `printconf`, the old file is saved as `/etc/printcap.old`.
- If you add a new print queue or modify an existing one, you need to restart the printer daemon (`lpd`) for the changes to take effect.
- Clicking the Apply button saves any changes that you have made and restarts the printer daemon. The changes are not written to the `/etc/printcap` configuration file until the printer daemon (`lpd`) is restarted. Alternatively, you can choose File => Save Changes and then choose File => Restart lpd to save your changes and then restart the printer daemon.
- If a printer appears in the main printer list with the Queue Type set to INVALID, the printer configuration is missing options that are required for the printer to function properly. To remove this printer from the list, select it from the list and click the Delete button.

Adding a Remote Unix Printer

To add a remote UNIX printer, such as one attached to a different UNIX/Linux system on the same network, click the **New** button in the main `printconf` window.

Select **Unix Printer** from the **Queue Type** menu, and click **Next**.

Enter a unique name for the printer in the **Queue Name** text field. The printer name cannot contain spaces and must begin with a letter a through z or A through Z. The valid characters are a through z, A through Z, 0 through 9, -, and _. Click **Next**.

Text fields for the following options appear:

- **Server** – The hostname or IP address of the remote machine to which the printer is attached.
- **Queue** – The remote printer queue. The default printer queue is usually `lp`.

By default, the Strict RFC1179 Compliance option is not chosen. If you are having problems printing to a non-Linux lpd queue, choose this option to disable enhanced LPRng printing features.

Click **Next** to continue

The next step is to select the type of printer that is connected to the remote system.

Important!

The remote machine must be configured to allow the local machine to print on the desired queue. As root, create the file `/etc/hosts.lpd` on the remote machine to which the printer is attached. On separate lines in the file, add the IP address or hostname of each machine which should have printing privileges.

Selecting the Print Driver

If you are configuring a local printer, select the print driver from the list. The printers are divided by manufacturers. Click the arrow beside the manufacturer for your printer. Find your printer from the expanded list, and click the arrow beside the printer name. A list of drivers for your printer will appear. Select one. Then finish the wizard in the usual manner.

SuSE 8.0

The printing system on SuSE Linux is based on an apsfiler, with some enhancements; SuSE's apsfiler will recognize all common file formats (including HTML, if html2ps is installed).

There are two ways to setup printers on SuSE systems:

- YaST2 will let you configure "PostScript", "DeskJet" and "Other printers", supported by Ghostscript drivers; it's also possible to setup HP's GDI printers (DeskJet 710/720, 820, 1000, via the "ppa" package). YaST2 will provide /etc/printcap entries for every printer ("raw", "ascii", "auto" and "color", if the printer to configure is a color printer). YaST2 will create spool directories and it will arrange apsfilters files, where you're able to fine tune some settings (Ghostscript preloads, paper size, paper orientation, resolution, printer escape sequences, etc.). With YaST2 it's also possible to setup network printers (TCP/IP, Samba, or Novell NetWare Printer).
- SuSE includes the regular SETUP program from the original apsfilters package (with some enhancements); run `lprsetup` to invoke this configuration script. Once you get accustomed to its GUI, you'll be able to configure local and network printers.

Invocation of YaST2 On the Gnome desktop select YaST2 Menu Button (on the panel) => Yast Control Center => Hardware => Edit Printers to start the Printer Configuration tool.

On the KDE desktop select YaST Menu Button (on the panel) => Yast2 modules => Hardware => Edit printers to start the graphic version.

Print Queues SuSE and YaST2 differ between these printer connections:

- Local printers (Parallel, Serial and Disk File)
- LPD protocol network printing (Forward queue to a remote LPD and Prefiltered queue for an LPD forwarding queue)
- Other network printing (Samba/Windows, Novell)

The SuSE installation manual explains the setup procedures in detail.

Installation in the UNIX Environment using axinstall

Should you require to integrate the AXIS 5600+ into your host spooler, you can use the Axis automatic installation script *axinstall*. This utility software is resident on the AXIS 5600+ and can be downloaded to your host using FTP, so no disks are required. The *axinstall* script can also be downloaded from the Axis Communicationws web site <http://www.axis.com/> and on the AXIS Network Product CD.

You are able to print in interactive mode using LPR, FTP or Reverse Telnet protocols with this method.

Having completed this operation, the printer connected to the AXIS 5600+ will appear as though they are directly connected to the host printer spooler.

Integration into the Host Printer Spooler

To integrate the AXIS 5600+ into the host printer spooler, you can use the auto installation script *axinstall*, resident in the AXIS 5600+. Follow the instructions below to install *axinstall* onto your host using FTP:

1. Login to the AXIS 5600+ using the command:
`ftp <host name> or ftp <IP address>`
2. Enter `root` as the user id and `pass` as the password.
3. Download the script using the command:
`get axinstall`

Log out using the command `quit`, `bye` or `exit` depending on your FTP version.

```
> ftp npserver
connected to npserver.
220 AXIS 5600p FTP Print Server v6.23 Apr 01 2002
ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass (not visible)
230 User logged in
ftp> get axinstall
200 PORT command successful.
150 Opening data connection for axinstall
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
local: axinstall remote: axinstall
61187 bytes received in 14 seconds (4.2 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Typical FTP session for collecting the *axinstall* script

The *axinstall* script has now been downloaded to your host. Execute the script with this command:

```
sh axinstall
```

You will be guided through the installation by a step-by-step procedure. During the installation you will be asked to select a print method; we suggest you choose LPD or, for more functionality, use the PROS filter or named pipe methods. Please refer to the following pages if you need guidance on the choice of print methods.

The *axinstall* script will suggest one of the systems listed below when started. If you do not find the suggestion appropriate, then manually select any of the systems listed.

```

1....SunOS 4 (SUN BSD, Solaris 1.x)
2....SunOS 5 (SUN SYS V, Solaris 2.x)
3....AIX (IBM RS/6000, BULL DPX 20)
4....HP-UX (HP 9000)
5....BOS (BULL DPX 2)
6....DEC OSF/1 (Digital Equipment, Alpha)
7....ULTRIX (Digital Equipment, DEC)
8....IRIX (Silicon Graphics, SGI)
9....SCO UNIX (Santa Cruz Operation)
10...SCO UnixWare 2.x
11...SCO UnixWare 7
12...SCO OpenServer
13...FreeBSD (Berkeley UNIX)
14...Linux

15...Generic BSD (Berkeley UNIX)
16...Generic SYS V R3 (UNIX System V Release 3)
17...Generic SYS V R4 (UNIX System V Release 4)
    
```

Systems supported by axinstall

Print Methods on TCP/IP Networks

The AXIS 5600+ supports several different print methods in the TCP/IP environment. *axinstall* will suggest a print method suitable for your particular UNIX system, but you might want to use another method depending on your printing requirements (banner pages, status logging, etc).

The diagram below shows the alternative data paths taken by some of the UNIX print methods. This illustrates some of the advantages and limitations of the different methods. Use the following information to determine which method to adopt.

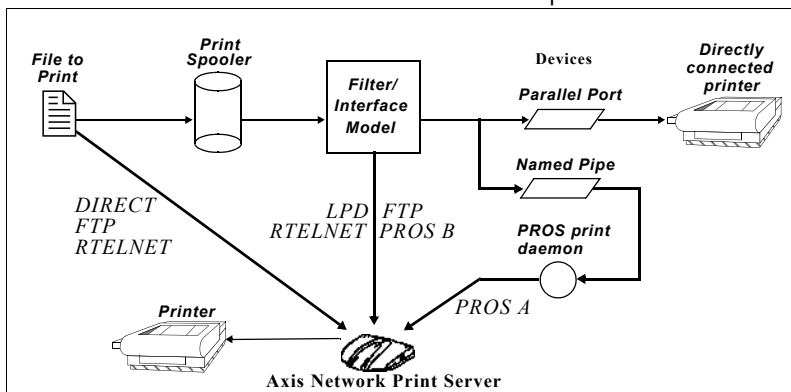


Illustration of different UNIX print methods

LPD The Line Printer Daemon is a protocol for transferring print jobs between hosts. This is the recommended method for UNIX systems, but some System V versions do not support LPD.

Advantages:

Easy to set up – install the AXIS 5600+ as a remote queue in System V, or add a remote printer to `/etc/printcap` using the `rm` and `rp` fields (BSD).

Limitations:

Spooler features, and `printcap` or `lpr` options (BSD) such as multiple copies, are not available.

FTP The File Transfer Protocol is used for transferring files between hosts.

Advantages:

Uses industry standard network software on the host.

Limitations:

No printer status logging. In the case of BSD it may conflict with other input or output filters and does not allow both input and output filters. In System V no filters or interface programs can be used.

PROS A protocol developed at Axis. Comes in two versions; *named pipe* (PROS A) and *filter* (PROS B).

PROS A – Advantages:

The AXIS 5600+ appears as a device to the system. This makes all filter and model options available. It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

PROS A – Limitations:

A 'C' compiler is required to build the PROS A drivers.

Note: You can download a 'C' compiler from <http://www.gnu.org/>.

PROS B – Advantages:

It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

PROS B – Limitations:

A 'C' compiler is required to build the PROS B drivers and in the case of BSD, it may conflict with other input or output filters. It does not allow both input and output filters. Interface programs can not be used in System V.

Note: You can download a 'C' compiler from <http://www.gnu.org/>.

Reverse Telnet Often used for printing via a terminal server printer port. Only recommended if you already have a Reverse Telnet driver installed.

Advantages:

Easy to set up with previously installed Reverse Telnet drivers.

Limitations:

No status logging. Drivers are not supplied with the AXIS 5600+. Existing drivers may be slow.

Other UNIX Systems Most UNIX systems resemble either BSD or System V and so with some ingenuity, a solution can also be devised for other variants.

If the system has BSD socket type networking support, then `prosb` (in the `bsd` directory of the AXIS 5600+) can be used as a starting point. It receives print data from `stdin`, and writes a log file to `stderr`. Nothing is written to `stdout`.

Alternatively, FTP may be used. It is a good idea to use `bsd/ftp_bsd` or `sysv/ftp_sysv` as a starting point.

IBM MVS Systems A sample JCL script, `jcllex`, is available in the `mvs` directory of the AXIS 5600+. It gives an example of how to print a file from an MVS mainframe to an AXIS 5600+ using FTP.

Management & Configuration

The management and configuration tools that are supported by the AXIS 5600+ allows you to:

- Change the print server parameters, i.e. editing the *config* file
- Receive extended information about the print jobs
- Receive printer port status
- Monitor your printers
- Reset the AXIS 5600+
- Upgrade the AXIS 5600+ firmware (Refer to *Section Upgrading the Software*, on page 171)

Configuration Overview

The method you should use to manage and configure your AXIS 5600+ is depending on the operating system protocols of your network. The table below displays which method to use for each supported environment.

Operating System Protocols	Configuration/Management methods
TCP/IP (UNIX, Windows 95/98/NT/2000/XP, Windows 3.1/WFW, NetWare Pure IP, OS/2)	• Web Browser - See page 120 • AXIS ThinWizard - See page 127 • FTP - See page 137 • telnet - See page 140 • SNMP - See page 143
NetBIOS/NetBEUI (Windows 95/98/NT/2000, Windows 3.1/WFW, OS/2)	• AXIS NetPilot - See page 130
IPX/SPX (NetWare)	• AXIS NetPilot - See page 130
AppleTalk using TCP/IP	• Web browser - See page 120

Using a Web browser

Once you have established the AXIS 5600+ in the TCP/IP environment, as described in *Assigning an IP address*, on page 22, you are free to access the AXIS 5600+ Web pages from any Java enabled Web browser.

The Web interface of the AXIS 5600+ is divided into two modes of operation, User mode and Admin mode.

- User In User mode, you have no rights to change any parameter settings. However, if you have access rights to the Admin mode, you can change some of the basic parameters from User mode via the Configuration Wizard. This mode is intended for regular users who are only interested in using the print server's interface for checking print jobs or viewing printer properties. If you want to change any other of the print server's settings, you must enter the Admin mode.
- Admin When in Admin mode, you have access to all the print server's parameters and you can change them to your liking. This mode is intended for network administrators and is password protected to prevent unauthorized changing of the print server parameters.
- Note:** If the ROOT_PWD parameter is set to *pass*, which is the default value, you have access to the User mode as well as the Admin mode.

Accessing the Web Pages

Follow the steps below to access the internal home page of the AXIS 5600+.

1. Start your Web browser.
2. In the **Location/Address** field, type the host name or the IP address of your AXIS 5600+:

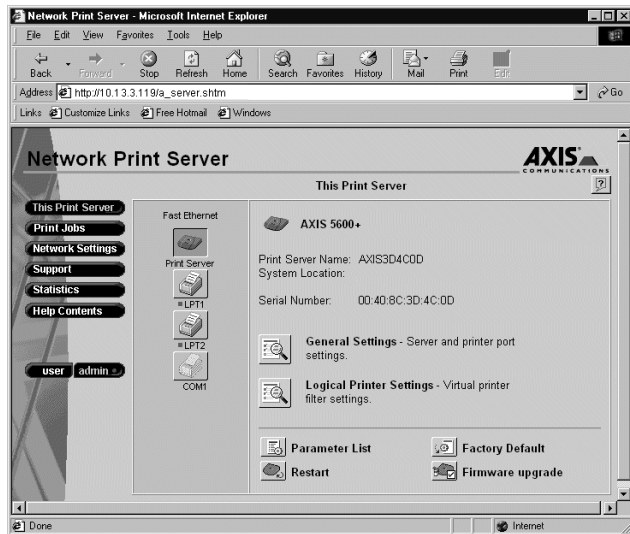


3. The User Mode home page of your AXIS 5600+ appears in the browser window.



The AXIS 5600+ User Home Page

Click the **admin** button to enter the Admin mode. If the management password is set to anything but `pass`, you must enter `root` as the user and the password. The password `pass` is the default password of the AXIS 5600+.



The AXIS 5600+ Administrator Web Page

Available Services from the User Mode

Printer Overview

The following services are available from the User mode. An additional link to the Axis home page is available from this mode.

The Printer Overview page contains a section that allows you to view the general parameter setting of the AXIS 5600+, including the print server name and the location of the print server in your organization, if defined.

If you have admin access rights you can use the Configuration Wizard to perform basic configuration of the AXIS 5600+.

By clicking on the printer icons, a printer page opens, allowing you to view the status and the supported capabilities of each connected printer. The extent of this information is depending on the printer model. From the printer page, you can also print a test page to the selected printer.

Print Jobs

From the Print Jobs page you can view the status of the current print jobs, including the number of printed bytes and the origin of the print job. You can also view a log of the 20 latest print jobs that includes the user, the printing protocol and the file size. A log that displays

General Help

the accumulated usage of the connected printers allows you to control the usage of the connected printers.

The General Help page presents you with basic information about the AXIS 5600+ and the Web user interface. A short description of the Axis installation tools you should use when installing a printer on your PC, is also included.

Configuration Wizard

The Configuration Wizard will guide you through the procedure of verifying some default settings and configure a few parameters. When you are finished, the print server is correctly configured for all printers and network environments.

Language Settings

You can change the language of the print server's web interface from the User mode. Available language options are English (default), French, German, Japanese and Spanish. Click **Language => Change** from the web interface.

Character Setting

You can change the character settings from the User mode. Click **Language => Change** from the web interface.

The available character sets are SHIFT_JIS, ISO-8859-1 and UTF-8. When choosing a character set, it is important that your web browser uses the same character set as you print server. ISO-8859-1 is the default character set.

- For Japanese, SHIFT_JIS or UTF-8 should be used. SHIFT_JIS is default for Japanese.
- Other languages should use UTF-8 or ISO-8859-1.

Available Services from the Admin Mode

This Print Server

The following services are available from the Admin mode. An additional link to the Axis home page is available from this mode

The **This Print Server** page contains a section that allows you to view and modify the general parameter setting of the AXIS 5600+, including the print server name, the node address, the password and the base URL. You can also configure any of the eight available logical printers of the AXIS 5600+. Management operations, like restarting the AXIS 5600+ and resetting its parameters to the factory default settings, are also available.

By clicking on the printer icons, a printer page opens, allowing you to view the status and the supported capabilities of each connected printer. The extent of this information is depending on the printer model. From the printer page, you can also print a test page to the selected printer.

Print Jobs

From the Print Jobs page you can view the status of the current print jobs, including the number of printed bytes and the origin of the print job. You can also view a log of the 20 latest print jobs that includes the user, the printing protocol and the file size. A log that displays the accumulated usage of the connected printers allows you to control the usage of the connected printers. If you want to delete an ongoing print job, a delete button is available on this page.

Network Settings

From the Network Settings page you can set all parameters that control the network traffic to and from the AXIS 5600+. You can enable or disable any of the supported network protocols and fine-tune the parameter settings.

Caution!

Any network configuration should involve the Network Administrator.

Support

From the Support page you can receive help to resolve any installation or print problems that might occur. If your problems persist, the Support page allows you to produce a Server Report. The Server Report includes the settings of the AXIS 5600+, information about your connected printers as well as the current network settings. The Server Report is of great value for support assistance, so please mail, email or fax it to your support channel together with a detailed problem description.

Statistics

The Statistics page displays information about the network traffic to and from the AXIS 5600+ as well as information about servers and services that are connected or associated with the AXIS 5600+.

Help Contents

The Help Contents displays a comprehensive description of the configuration and management activities that can be performed from the internal Web pages of the AXIS 5600+. These activities include instructions on how to install the AXIS 5600+ in various environments and how to upgrade it with new firmware. A detailed index is also available.

Parameter List Button

Shows all the current parameter settings of the print server.

Restart Button

Restarts the print server.

Factory Default Button	Resets all the print server's parameter settings to the default values.
Firmware Upgrade Button	Upgrades the print server's internal software.

Using AXIS ThinWizard for Print Server Management

AXIS ThinWizard allows you to manage and upgrade **multiple** Axis products. Using a standard Web browser, you can find, install, monitor, configure and upgrade your Axis print servers remotely in any TCP/IP network.
 AXIS Thin Wizard 3.0 is Windows 2000 and Windows XP compatible.

Installing AXIS ThinWizard

AXIS ThinWizard is available on the AXIS Network Product CD and can also be downloaded from the Axis Web site. You should only install AXIS ThinWizard on a designated computer on your network.

To install, follow the instructions given by the Installation Wizard. During the installation, you will be asked to enter a user id and a password — these will be used when logging in to AXIS ThinWizard, so please take a note of them.

Notes:

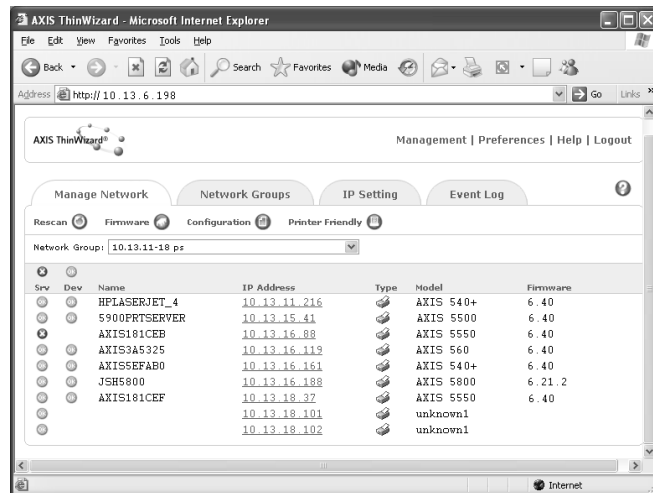
To be able to use all AXIS ThinWizard features, the print server must have the FTP_ENB. parameter enabled, i.e. set to "yes".

Starting AXIS ThinWizard

Follow the instructions below to start the AXIS ThinWizard:

1. Make sure that the computer where you installed the AXIS ThinWizard is up and running on your network.
2. Start a Web browser on a client in your network.
3. Enter the IP address or the host name of the computer where you installed AXIS ThinWizard. (If the server is installed on another port than 80, you must enter the port name after the host name or the IP address).
4. The AXIS ThinWizard start page now appears in the Web browser. Enter the user id and password you specified during installation and click **Log in**.
5. The AXIS ThinWizard interface appears.

The first time you use AXIS ThinWizard, set the **Preferences** to reflect your network environment:



1. Select a network group from the list on the **Manage Network** page. If the list is empty, you must first create a group.
2. Click the **Network Groups** tab and follow the instructions

Creating a Network Group

The network group concept is the corner stone of AXIS ThinWizard. By dividing your network into network groups, you can monitor your print servers more efficiently. The scope of each network group is determined by the Axis server types and IP address ranges that are included. You can create as many network groups as you want.

Follow the instructions below to create a network group:

1. Click **Network Groups** in the AXIS ThinWizard main menu.
2. Click **Create**.
3. The Create Network Group page opens. Type the name of the network group, enter the IP address ranges and Axis server types that should be included. If you are only interested in managing print servers, deselect all options but the **print server** option.
4. Click **OK** to create the network group.

You can edit the properties of each network group from the Network Groups page. Simply select the network group from the list and use one of the **Edit**, **Copy** or **Remove** commands.

Managing Print Servers with AXIS ThinWizard

Follow the instructions below to access the AXIS 5600+ using AXIS ThinWizard:

1. Click **Manage Network** in the main menu.
2. Select the network group, including the, from the drop-down list. All AXIS servers included in the network group appear in the window.
3. Click the link of the AXIS 5600+ to access its internal Web page.
4. The 'Srv' and 'Dev' columns show the status of your print servers and printers.

You are now free to manage and configure the print server as described in *Available Services from the User Mode*, on page 122.

Upgrading Axis Servers

Refer to *Upgrading using AXIS ThinWizard*, on page 173, for more information about upgrading Axis servers using AXIS ThinWizard.

Additional Information

If you need more information, please refer to the AXIS ThinWizard on-line help.

Using AXIS NetPilot

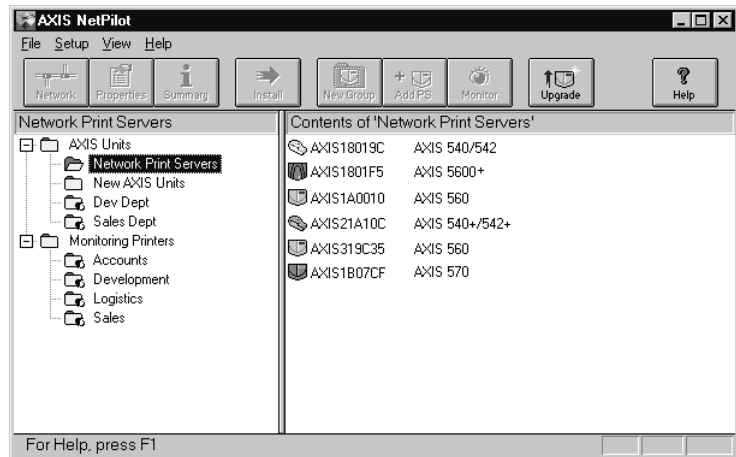
AXIS NetPilot is the recommended tool to use for configuring the AXIS 5600+ in networks that support communication via the IPX/SPX or the NetBIOS/NetBEUI protocols. You will find AXIS NetPilot on the AXIS Network Product CD and on www.axis.com.

AXIS NetPilot allows you to:

- Change the AXIS 5600+ parameter values
- Modify network environment settings
- Monitor your printers on the network
- Create logical groups of print servers to simplify administration
- Upgrade the AXIS 5600+

Starting AXIS NetPilot

Start AXIS NetPilot by clicking the AXIS NetPilot icon, which resides in the folder where you installed AXIS NetPilot.



The main window of AXIS NetPilot

Changing the parameter values

AXIS NetPilot provides you with two useful tools for changing parameter values:

- **Property pages:** Use the Property pages if you have little experience in editing *config* files and need a user-friendly interface.
- **Parameter List Editor:** Use this fast and efficient tool if you have considerable experience in editing *config* files.

The Property Pages

The Property pages provide an easy way to view and change the parameters. Each property page comprises a set of selection tabs that are appropriate to your operating environments. Each parameter can be edited by selecting the relevant box.

Follow the instructions below to open and edit an arbitrary Property Page:

1. Select the AXIS 5600+ from the 'Network Print Servers' folder.
2. Click the **Properties** button on the AXIS NetPilot toolbar or choose **Properties** from the **Setup** menu.
3. Select the tab that includes the parameter you want to change.
4. Change the value.
5. Click **Apply** to save the change to the print server. (If you select **OK** instead, the Property pages closes automatically after the change has been saved).

The Parameter List Editor

The Parameter List Editor is a simple editor that enables you to:

- Edit the AXIS 5600+ *config* file.
- Save customized *config* files to your hard disk.
- configure several network print servers simultaneously.

Follow the instructions below to use the Parameter List Editor:

1. Choose **Edit Parameter List** from the **Setup** menu.
2. Download a *config* file from a print server or from your hard disk by selecting **from File** or **from Print Server**.
3. Click the **Load** button and the *config* file opens in the editor.
4. Edit the *config* file.
5. Select the appropriate radio button, **To File** or **To Print Server**.
6. Click **Save** after you have made your choice, to save the modified *config* file.

Important: When saving the *config* file to multiple print servers, make sure that you do not assign the same IP address to different print servers.

Modifying the network environments

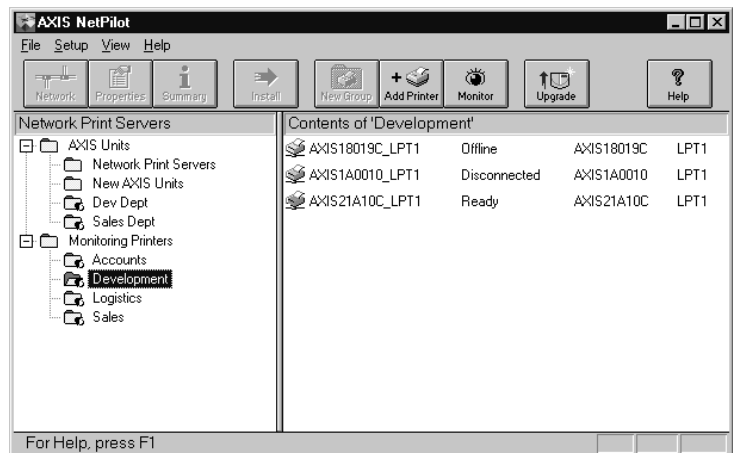
From the Network Environment window you can modify the network settings for each supported network environment.

To gain access to the Network Environment window, follow the instructions below:

1. Select the AXIS 5600+ from the 'Network Print Servers' folder.
2. Click on the **Network** button on the toolbar or select **Network** from the **Setup** menu.
3. Select the tab corresponding to the environment that you want to modify.

Monitoring Printers

To simplify printer monitoring, you can create logical groups of printers. The printer status of each printer is displayed in the AXIS NetPilot window.



AXIS NetPilot's Monitoring Window

Creating a printer group

Follow the instructions below to create a printer group:

1. Select the 'Monitoring Printers' folder.
2. Click on the **New Group** button on the toolbar or select **New Printer Group** from the **File** menu.
3. Type a printer group name in the text field and click **OK**.

You can create as many printer groups as you want.

Adding a printer to a printer group

Follow the instructions below to add a printer to a printer group:

1. Select the printer group folder, located in the 'Monitoring Printers' folder.
2. Click on the **Add Printer button** on the toolbar or select **Add Printer** from the **File** menu.
3. The Add Printer window appears. Double-click the print server, to which the desired printer is connected and select the printer port. Click **OK**.

Examining printers

Follow the instructions below to monitor the printers:

1. Select the printer group folder, located in the 'Monitoring Printers' folder. The printer status appear in the right-hand frame of AXIS NetPilot.
2. If you want the status to appear in a new window, click the **Monitoring** button on the AXIS NetPilot toolbar.

Grouping logically connected Print Servers together

AXIS NetPilot allows you to create logical groups of print servers in order to simplify administration. Installed print servers are displayed in the 'Network Print Servers' folder and shortcuts to these print servers can be added to the print server groups. Management operations performed on the shortcuts affects the functionality of the print servers.

Creating a Print Server Group

Follow the instructions below to create a print server group:

1. Select the 'AXIS Units' folder.
2. Click on the **New Group button** on the toolbar or select **New Print Server Group** from the **File** menu.
3. Type a print server group name in the text field and click **OK**.

You can create as many print server groups as you want, but you cannot include a print server in more than one group.

Adding a Print Server to a Print Server Group

Follow the instructions below to add a print server to a print server group:

1. Select the print server group folder, located in the 'AXIS Units' folder.
2. Click on the **Add PS** button on the toolbar or select **Add Print Server** from the **File** menu.
3. The Add Network Print Server window appears. Select the print server and click **OK**.

Examining Print Servers

Follow the instructions below to monitor the print servers:

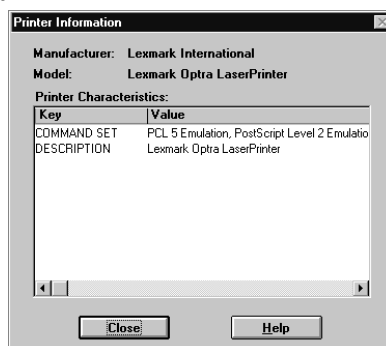
1. Select the print server group folder, located in the 'AXIS Units' folder.
2. Select the print server.

Printer Information

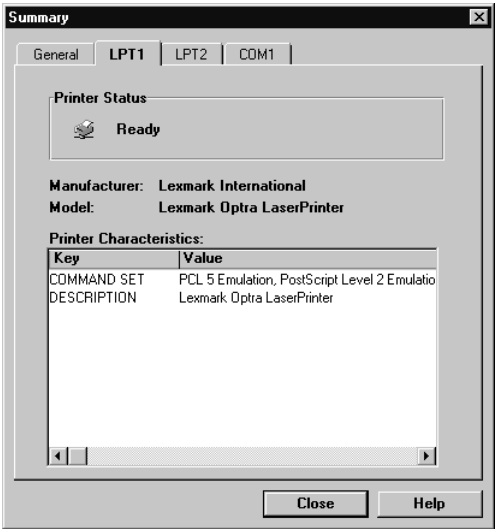
Follow the instructions below to obtain detailed printer information from printers appearing in the monitoring window:

Note: The extent of the detailed printer information is depending on your printer model.

1. Select the desired printer folder, located in the 'Monitoring Printers' folder.
2. Click the desired printer icon and choose **Printer Information** from the **File** menu.



You can also view the detailed printer information in the Summary window.



AXIS NetPilot Summary window

Upgrading the Print
Server

You can use the AXIS NetPilot Upgrade Wizard to upgrade the AXIS 5600+ software. Please refer to *Section Upgrading the Software*, on page 171, for details.

Additional
information

Refer to the AXIS NetPilot on-line help for further information about this tool.

Using FTP

Having assigned an IP address to your AXIS 5600+, as described in *Assigning an IP address*, on page 22, you can change the AXIS 5600+ parameter settings using the File Transport Protocol (FTP).

Editing the *config* file Follow the instructions below to edit the *config* file using FTP:

1. Log in to the AXIS 5600+ by typing:
`ftp <host name> or ftp <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell window.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. Download the *config* file to your host by typing:
`get config`
4. Edit the file using your preferred text editor.
5. Save the *config* file to the AXIS 5600+ by typing:
`put config CONFIG`

Notes: It is important that the destination file is specified in capital letters. Otherwise the edits are temporary and will be lost once the AXIS 5600+ has been powered down.

To edit the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. The procedure for editing the file is the same as described above.

The example on the next page shows how to edit the *config* file using FTP from a DOS window.

Example:

```
> ftp npserver
connected to npserver.
220 AXIS 5600+ FTP Print Server v6.20 Jan 01 2001
ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass           (not visible)
230 User logged in
ftp> get config
200 PORT command successful.
150 Opening data connection for config
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.24 seconds (35.63 kbytes/s)
ftp> put config CONFIG
200 PORT command successful.
150 Opening data connection for CONFIG
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.45 seconds (19.04 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Viewing the *Status* File

The status command shows which printer port the logical printers are assigned to, and their current status.

Follow the instructions below to view the *status* file using FTP:

1. Log in to the AXIS 5600+ by typing:
`ftp <host name> or ftp <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell window.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. Download the *status* file to your host by typing:
`get status`
4. View the status file using your preferred text editor.

Viewing the *Account* File

The *account* file contains data concerning the 20 last print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed, Off-line, or Printing), number of bytes printed, elapsed time and off-line time.

Follow the instructions below to view the *account* file using FTP:

1. Log in to the AXIS 5600+ by typing:
`ftp <host name> or ftp <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell window.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. Download the *account* file to your host by typing:
`get account`
4. View the *account* file using your preferred text editor.

FTP Help

By typing `help` in step 3 in the FTP instruction sets above, a list of all available files and commands will be displayed.

Using Telnet

Viewing the *Account* File

Having assigned an IP address to your AXIS 5600+, as described in *Assigning an IP address*, on page 22, you can manage your AXIS 5600+ using the telnet protocol.

The *account* file contains data concerning the last 20 print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed or Printing), number of bytes printed and elapsed time.

Follow the instructions below to view the *account* file using telnet:

1. Log in to the AXIS 5600+ by typing:
`telnet <host name>` or `telnet <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell window.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. View the *account* file by typing:
`account`

The example on the next page shows how to view the *account* file using Telnet from a UNIX window.

Example:

```
> telnet npserver
Trying 192.36.253.96...
Connected to npserver.
Escape character is '^]'.

AXIS 5600+ TELNET Print Server v6.20 Jan 01 2001

AXIS 5600+ network login: root
Password: pass                (not visible)

AXIS 5600+ TELNET Print Server v6.20 Jan 01 2001

Root> account
Current account file:

```

JOB	USER	PROT	LPR S BYTES	ETIME
1	Thomas	FTP	pr2 C 1885	2
2	Joe	LPT	pr1 C 23074	4
3	RICHARD	PSERVER	pr2 C 43044	5
4	MacUser	APPLE	pr1 C 6717	2
5	LSLM_user	NetBIOS	pr2 C 36995	3
6	patrick	PROS	pr5 P 83208	9

```
Root>
```

Typical Telnet session to view the Account File

Viewing the *Status* file

The status command shows which printer port the logical printers are assigned to, and their current status.

Follow the instructions below to view the *status* file using telnet:

1. Log in to the AXIS 5600+ by typing:
telnet <host name> or telnet <IP address> in a DOS window (Windows and OS/2) or in a UNIX shell window.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. View the *status* file by typing:
`status`

Performing resets

Three types of reset commands allow you to perform soft resets, to perform hard resets, and to reset the print server's parameters to its factory default settings.

Follow the instructions below to perform a soft reset using telnet:

1. Log in to the AXIS 5600+ by typing:
telnet <host name> or telnet <IP address> in a DOS window (Windows and OS/2) or in a UNIX shell window.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. Restart the print server's protocols by typing:
`softreset`

Replace the command in step 3 above with `hardreset` or `default` to perform the other two reset operations.

Telnet Help

By typing `help` in step 3 in any of the Telnet instruction sets above, a list of all available commands will be displayed.

Using SNMP

You can use SNMP (Simple Network Management Protocol) for remotely monitoring and configuring of the AXIS 5600+. All major functions for print servers are supported.

General Information

SNMP refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The AXIS 5600+ SNMP implementation runs in TCP/IP and NetWare (IPX) networks.

The management is handled by NMS (Network Management System) software running on a host on your network. The NMS software communicates with network devices by the means of messages, which are references to one or more objects.

A message can be a question or an instruction to a device, or an alarm triggered by a specific event in a device. Objects are contained in data bases called MIBs (Management Information Base), where MIB-II is a standard database.

The AXIS 5600+ supports all relevant parts of MIB-II and of the host resources MIB. The AXIS 5600+ also includes a private enterprise MIB, the AXIS MIB.

NetWare

Windows

OS/2

Macintosh

UNIX

The AXIS MIB

In order to make full use of the AXIS 5600+ SNMP support, you are required to use NMS software that allows you to install private enterprise MIBs, like the AXIS MIB.

The AXIS MIB contains a large number of objects which may be categorized as follows:

- Menu objects – used for viewing and changing the AXIS 5600+ configuration from the NMS program. Refer to – *The Parameter List*, on page 178.
- Printer status and unit administration objects – used for monitoring AXIS 5600+ print jobs and storing parameter changes permanently.
- Trap objects – used for alarms at various error conditions.

For technical details, you can view the MIB file (*axis.mib*) with any text editor.

The AXIS MIB is resident on the AXIS 5600+ and can be downloaded directly from the print server to your NMS software using FTP.

Follow these steps to add the AXIS MIB to your NMS software:

1. Log in to the AXIS 5600+ using FTP.
2. Download the MIB file */snmp/axis.mib* to the NMS host.
3. Install the AXIS MIB according to instructions in your NMS software documentation.

Print Server Features

This section describes some special features offered by the AXIS 5600+. Free firmware is available on the AXIS Network Product CD and on www.axis.com

- *Auto-IP*, on page 145
- *E-mail Notification*, on page 146
- *IPP - Internet Printing Protocol*, on page 147
- *Using Logical Printers to Customize your Printing*, on page 159
- *Multi-Language Support*, on page 168
- *Network Speed*, on page 169
- *Web Flash-Loading*, on page 170

Auto-IP

The print server will always receive an IP-address automatically when connecting it to the network by means of Auto-IP. If you have a DHCP server running on your network, the AXIS 5600+ will receive an IP address immediately after you have connected it to the network. In the absence of a DHCP server, your AXIS 5600+ print server will automatically be assigned an IP-address through integrated Auto-IP. The Auto-IP function is enabled by default and does not require any configuration by the user.

See "DHCP and Auto-IP" on page 33.

E-mail Notification

Whenever an event that needs human intervention occurs in a network printer, the concerned person can be notified by e-mail. This 'trouble-report' contains a short and concise description of the event. Five events are covered: **Paper Jam, Out of Paper, Toner Low, No Toner, Printer Off-line**. In order to determine who the e-mail recipients will be of these different trouble-reports, follow the instructions in *Setting the e-mail Notification Parameters*, on page 146.

Setting the e-mail Notification Parameters

In order to set the e-mail addresses of the people to whom these trouble-reports will be sent:

1. From your print server's internal web page, go to: **Admin | Network Settings | Detailed View | e-mail Notification**. The following options will appear:
 - PAPER JAM - intended for the person responsible for handling paper jams in the printer.
 - OUT OF PAPER - intended for the person responsible for filling the printer with paper.
 - TONER LOW - intended for the person responsible for filling up the toner in the printer.
 - NO TONER - intended for the person responsible for changing the toner in the printer.
 - PRINTER OFFLINE - intended for the person responsible for the overall maintenance of printer.
2. Enter the e-mail addresses of the trouble-report recipients in the blank fields as follows:

Example: name@company.com

3. Click **OK** and exit when done.

Important:

The **SMTP Server** parameter in the print server's internal web pages must be set so that it corresponds to the SMTP server used in your network. This is set in: **admin | Network Settings | Detailed view | TCP/IP | SMTP Server**.

IPP – Internet Printing Protocol

The AXIS 5600+ print server enables printing over the Internet with IPP (Internet Printing Protocol), a developing industry standard that allows users to print to remote printers across the Internet.

With IPP, a user with an Internet connection can send a document to any Internet-connected printer. IPP is platform-independent and can be used to print over any LAN or WAN that supports TCP/IP.

In practical terms this means that you can send documents to a remote printer as an addition to or replacement of fax and e-mail, with the same quality and color options of traditional network printing.

In order to print to a remote printer using IPP, you need the following:

- An *IPP client* installed on your computer together with appropriate printer drivers. The IPP client is a tool that adds destination printers to your printer list. A list of available IPP clients can be viewed in *Currently available IPP clients*, on page 149.
- The printer to which you want to send your print job needs to be connected to *a print server with IPP functionality*. AXIS 5600+ makes it possible for your printer to receive printjobs from an IPP client. The IPP-functionality of the AXIS 5600+ print server is automatically activated upon installation.

IPP Printing Requirements

Before you print to an IPP printer you need to know:

- the **http://** address of the print server. (The http:// address contains the IP address or host name of the print server, the port number (which is 631 and only used in the 1.0 standard) and the printer port name).
- the brand and model of the printer in order to install the appropriate printer driver.
- the printer port name of the print server to which the printer is connected.

Address-schemes for IPP printers

When using IPP printing, you need to know the IP address or host name of your IPP-enabled Axis print server. IPP is a client-server type protocol which comprises two industry standards:

- the 1.0 standard using a `http:` address scheme.
- the 1.1 standard using an `ipp:` address scheme.

The URL syntax for the destination printer contains:

1. the print server host name or IP-address
2. the port number 631 (only used in the 1.0 standard).
3. the local printer port name

Example using host name in the 1.0 standard:

If "axisps" is the host name of the AXIS 5600+ print server, "631" is the port number and "LPT1" is the local printer port name, then the syntax of the address scheme will be `http://axisps:631/LPT1` in the 1.0 standard.

IPP address using host name	Corresponding printer
<code>http://axisps:631/LPT1</code>	Printer attached to the LPT1 parallel port
<code>http://axisps:631/LPT2</code>	Printer attached to the LPT2 parallel port
<code>http://axisps:631/COM1</code>	Printer attached to the COM1 serial port

Example using IP-address in the 1.1 standard:

If "171.16.5.218" is the IP-address of the AXIS 5600+ print server and "LPT1" is the local printer port name, then the syntax of the address scheme will be `ipp://171.16.5.218/LPT1` in the 1.1 standard.

IPP address using IP address	Corresponding printer
<code>ipp://171.16.5.218/LPT1</code>	Printer attached to the LPT1 parallel port
<code>ipp://171.16.5.218/LPT2</code>	Printer attached to the LPT2 parallel port
<code>ipp://171.16.5.218/COM1</code>	Printer attached to the COM1 serial port

**Currently available
IPP clients**

An *IPP client* needs to be installed on your computer together with an appropriate printer driver for proper IPP functionality. The IPP client is a tool that adds destination printers to your printer list.

The AXIS 5600+ print server with integrated IPP is compatible with any 1.0 and 1.1 - compliant IPP client.

The AXIS 5600+ print server presents IPP Printer objects to the client, one for each printer port. Some of the most common IPP client printing methods are described later on in this chapter. Please refer to your client documentation for more specific information.

**Currently available IPP
clients on the market:**

- **For Windows 2000/XP:** the Microsoft IPP Client (automatically installed with OS).
- **For Windows 95/98, NT 4.0:** IPP clients can be downloaded from the Microsoft web site.
- **For Windows NT/2000:** the Internet Printer Connection software from Hewlett Packard (can be downloaded from the Hewlett Packard web site).
- **For Unix/Linux:** CUPS (can be down-loaded from the Common Unix Printing System web-site: <http://www.cups.org>).

User Requirements

The IPP protocol does not require any special configuration of the AXIS 5600+ print server, the IPP function is automatically activated when you install your AXIS 5600+.

IPP is platform independent and functional in Windows (NT, 95, 98, 2000 and XP), Macintosh, OS/2, NetWare and UNIX.

**Firewall
Considerations**

If there are one or more firewalls between the IPP Client and the server, you may have to make some changes to the firewall configuration. IPP uses TCP Port 631 for printing, so any firewalls between client and server must be configured to allow bi-directional traffic on that port. Please consult your network administrator if you think any configuration changes are necessary.

How to print

IPP printing in Windows 95/98:

In this example the printer's http: address is
http://171.16.5.218:631/LPT1.

Before you print to an IPP printer you will need to know:

- the http:// address of the print server. The http:// address contains the IP address or host name of the print server and the printer port name.
 - the brand of the printer in order to install the appropriate printer driver.
 - the printer port of the print server to which the printer is connected.
1. Select the IPP printer to which you want to send your document. Choose the destination printer from the **Printer name** field (In **File | Print**).

If your destination printer does not exist in your Printer name list, you need to add it. Adding an IPP-printer to your printer list is described in *Adding an IPP printer to your printer list in Windows 95/98*, on page 151.

2. When you press **Print**, the print job is sent over the Internet to the AXIS 5600+ print server, which then forwards the print job to the destination printer.
3. The recipient of the print job can collect the printjob at the destination printer.

Adding an IPP printer to your printer list in Windows 95/98

1. Install the IPP client for Windows 95/98 on your computer. This IPP client can be downloaded from the Microsoft web site.
2. Open **Start | Settings | Printers**.
3. Choose **Add Printer**, then **Network Printer**.
4. In the **Printer** field in the **Connect to Printers** window, write the http: address of the destination printer:
http://171.16.5.218:631/LPT1.
5. Select the appropriate printer driver corresponding to the destination printer.
6. Specify a name for the printer you wish to add to your printer list. Click **Finish**. The destination printer will be added to your printer list. You are now ready to print using IPP.

IPP printing in Windows NT:

Before you print to an IPP printer you will need to know:

- the **http://** address of the print server. The **http://** address contains the **IP** address or **host name** of the print server and the **printer port name**.
 - the **brand of the printer** in order to install the appropriate printer driver.
 - the **printer port** of the print server to which the printer is connected.
1. First you need to select the IPP printer to which you want to send your document. Select the destination printer from your **Printer Name** list (In **File | Print | Printer Setup**).

The printer name will begin with a URL: **http://...**

If your destination printer does not exist in your **Printer Name** list, you need to add it. Adding an IPP-printer to your printer list is described in *Adding an IPP printer to your printer list in Windows NT*, on page 152.

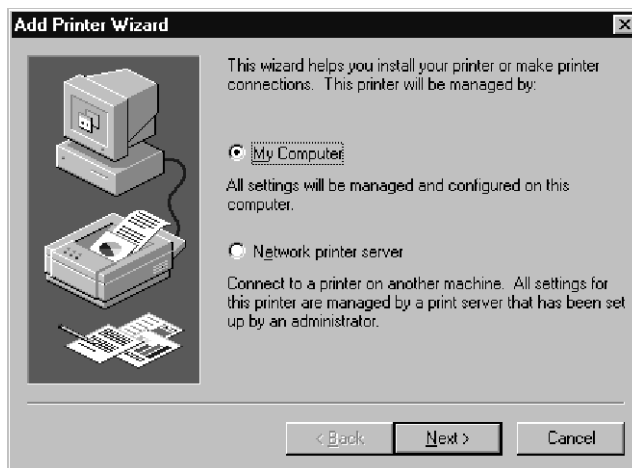
2. When you press **Print**, the print job is sent over the Internet/WAN to the AXIS 5600+ print server, which then forwards the print job to the destination printer.

Adding an IPP printer to your printer list in Windows NT

3. The recipient of the print job can collect the print job at the destination printer.

In this example the print servers http: address is `http://171.16.5.218`, the printer is connected to the AXIS 5600+ print server port LPT1 and the printer is a HP LaserJet 5Si (and the port number is 631).

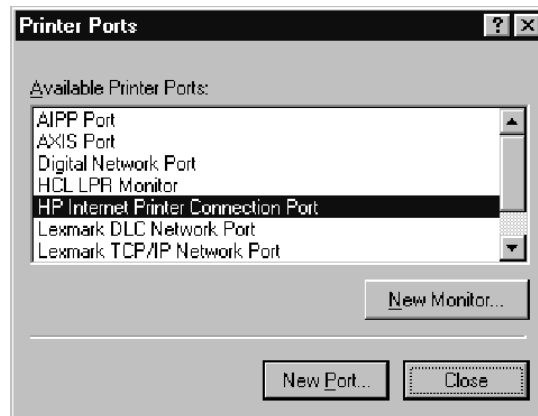
1. Install the Internet Printer Connection software from Hewlett Packard (can be down-loaded from the Hewlett Packard web site) on your computer.
2. Open **Start | Settings | Printers**.
3. Choose **Add Printer**. The Add Printer Wizard will start.
4. Next, the Wizard will ask you if you want to install on **My Computer** or on a **Network print server**. Choose **My Computer** and click **Next**:



5. In the Available Ports window, click Add Port:



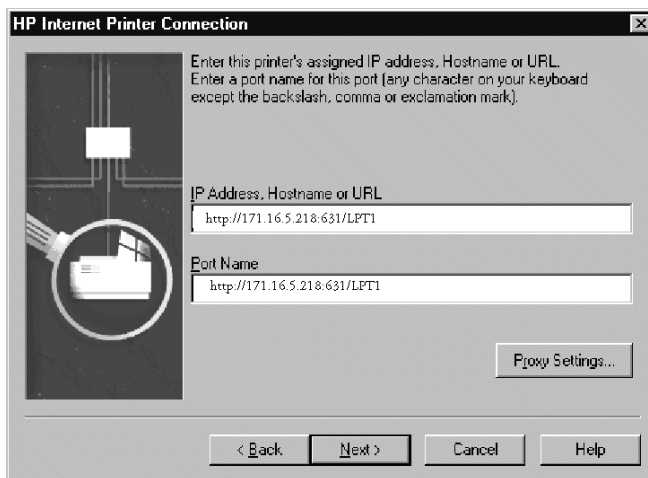
6. The Printer Ports dialog will appear, showing a list of Available Printer Ports.



Choose The HP Internet Printer Connection Port and click New Port.

7. The HP Internet Printer Connection will start. Click Next.

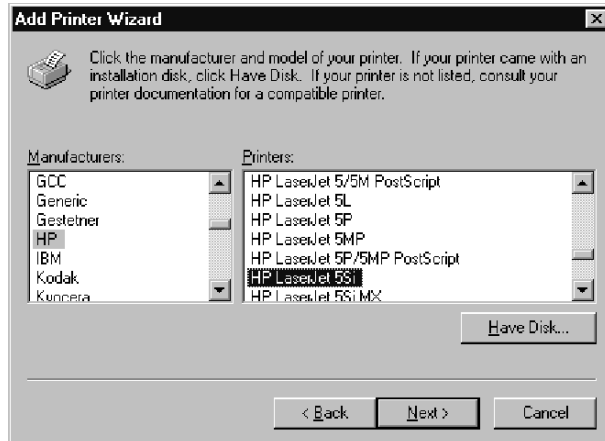
8. In the **IP Address, Host Name or URL** field, type the `http://` address of the Axis print server to which the destination printer is connected. The URL will automatically appear in the **Port Name** field as well:



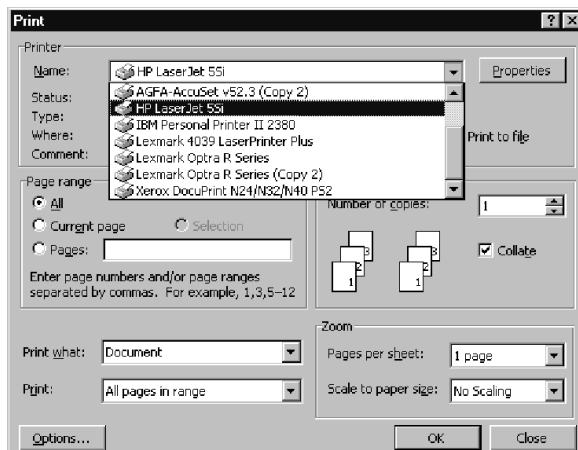
In this example the printer's `http:` address is `http://171.16.5.218:631/LPT1`. Click **Next**.

9. Next, the Wizard will confirm the information you have entered. Click **Finish** to complete the installation and go back to the **Available Ports** list.
10. The IPP printer port list is now available in the **Available Ports** list. Click **Next**.

11. Next, choose a suitable driver for the destination printer and install it. Click **Next**.



12. You will be asked if you want the newly added printer to be your default printer and if you want to share the printer on your network with other users. Choose the alternatives that suit your printing needs and click **Finish** to complete the installation.
13. The new printer will appear in your **Printer** window. You are now ready to start printing using IPP.



IPP printing in Windows 2000/XP

Before you print to an IPP printer you will need to know:

- the **http://** address of the print server. The **http://** address contains the **IP** address or **host name** of the print server and the **printer port name**.
 - the **brand** of the printer in order to install the appropriate printer driver.
 - the **printer port** of the print server to which the printer is connected.
1. Select the IPP printer to which you want to send your document. Choose the destination printer from the **Select Printer** field (In **File | Print**).

If your destination printer does not exist in your **Select Printer** list, you need to add it. Adding an IPP-printer to your printer list is described in *Adding an IPP printer to your printer list in Windows 2000/XP*, on page 156.

2. When you press **Print**, the print job is sent over the Internet to the AXIS 5600+ print server, which then forwards the print job to the destination printer.
3. The recipient of the print job can collect the printjob at the destination printer.

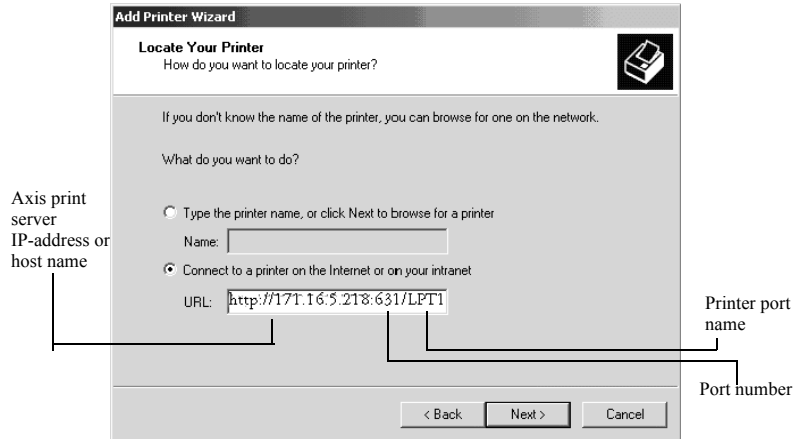
Adding an IPP printer to your printer list in Windows 2000/XP

In this example the print servers' **http:** address is **http://171.16.5.218**, the printer is connected to the AXIS 5600+ printer port **LPT1** and the printer is a **HP DeskJet 1120C** (and the port number is **631**).

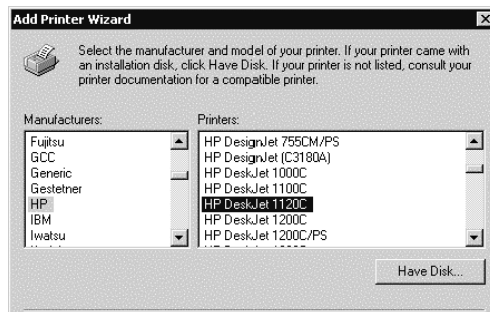
Thus, the printers **http://** address is **http://171.16.5.218:631/LPT1**.

1. Choose **File | Print** from the document you wish to print.
2. In the **Select Printer** field, click the **Add Printer** icon. The **Add Printer Wizard** will start.
3. The Wizard will ask you if you want to install a local printer or a network printer. Choose **Network Printer** and click **Next**.

4. Enter the printer `http:` address in the URL field, e.g. `http://171.16.5.218:631/LPT1` and click Next:

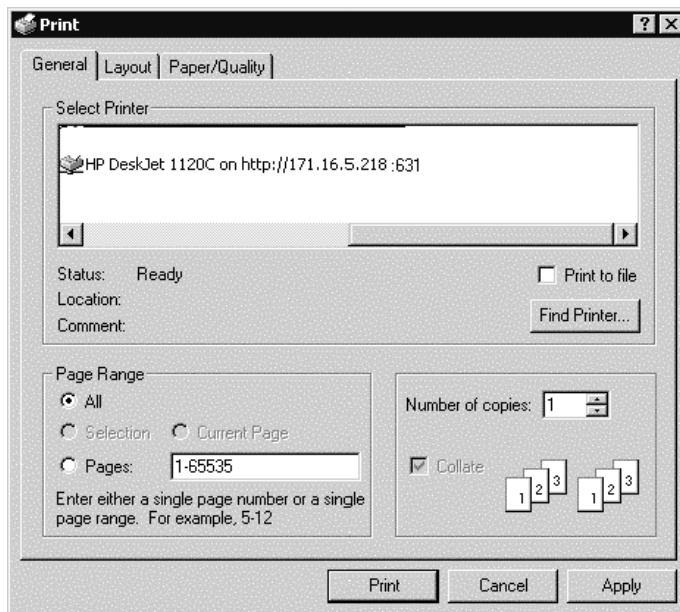


5. If you do not have a driver corresponding to the destination printer installed on your computer, the Wizard will prompt you to install one. Click **OK**:
6. The Installation Wizard will ask you to select a printer driver corresponding to the destination printer. Select the printer driver from the list and click **OK**:



7. The Wizard will ask you if you want the printer to be your default destination printer. Make your choice and click **Next** to complete the Add Printer Wizard installation.

8. The new printer is added to your **Select Printer** window:



9. You are now ready to print using IPP: specify your new destination printer from the printer list and click **Print**.

Using Logical Printers to Customize your Printing

The AXIS 5600+ has a powerful facility for altering the print data. This means that your desired print format can be realized on any type of printer. The following actions can be invoked from the AXIS 5600+:

- The character set can be changed to suit the printer
- Strings can be added before and after the print data
- Strings within the print data can be substituted
- ASCII to PostScript conversion
- Redirection of print data to another printer if the printer is busy
- Hex Dump mode to assist with printing problems

If any of these actions are required, a Logical Printer is used to change the print data before being sent to the printer port. There are eight logical printers (PR1-PR8) that can be set up to filter the print data.

The default logical printers settings are such that PR1-PR4 cause no change to the flow of print data, while PR5-PR8 add CR to LF control characters:

Logical Printer	Changes to data
PR1	no change
PR2	no change
PR3	no change
PR4	no change
PR5	add CR to LF
PR6	add CR to LF
PR7	add CR to LF
PR8	add CR to LF

Each logical printer can be set via the print servers' internal web pages: Open a Web browser, enter the IP address of the print server in the "URL/Adress"-field and choose **Admin | Logical Printer Settings**.

The logical printers can also be set up by editing the *config* file.

- Notes:**
- The examples in this section describe how you can configure the available logical printers using a standard Web browser. If you want to set them directly by editing the *config* file, just enter the values for the corresponding parameters.
 - The examples should only be viewed as suggestions how to configure the logical printers. You should, off course, configure them according to the needs of your network.
 - In - *The Parameter List*, on page 178, you can find a complete list of the AXIS 5600+ parameters.
 - Refer to *Section Management & Configuration*, on page 119, for more information about the available management tools.

Character Set Conversion

A common problem in a multiple host environment is that different hosts use different ASCII character sets. As a result of this, language specific characters (such as å ü ô ñ) are sometimes printed incorrectly.

The AXIS 5600+ solution to this problem is to assign a character set conversion filter to a logical printer, and then link that logical printer to the host causing the problem.

You select your desired conversion filter by setting the **Character Set Conversion** (PRx_CSET) parameter. The output from the conversion filter is always IBM PC Set 2 (Code Page 437), and this is the character set the printer must be set up for.

Example: Your network contains a host using the character set ISO 8859-2 and a host using the character set DEC. In order to direct their print jobs to the the printer connected to the AXIS 5600+, you should assign each host to a separate logical printer, and install a character set conversion filter.

Follow the instructions below to change the conversion filter:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **PR1** tab.
3. Set the parameter **Physical Port** to **LPT1**.
4. Set the parameter **Character Set Conversion** to **ISO>IBM**.

5. Click the **OK** button.
6. Select the **Printer2** tab.
7. Set the parameter **Physical Port** to **LPT1**.
8. Set the parameter **Character Set Conversion** to **DEC>IBM**.
9. Click the **OK** button.

The ISO 8859-2 printer data that is sent to logical printer PR1 converts to IBM PC Set 2 and is printed on LPT1. Similarly, the DEC printer data that is sent to logical printer PR2 converts to IBM PC Set 2 and is printed on LPT1.

Adding Strings Before and After Print Jobs

These string functions provide a way to send printer control commands before and after each print job. They may be specified individually for each logical printer.

All strings are entered as hexadecimal byte values.

Example: Assume that the logical printer PR5 is configured as a PostScript printer and that you want to append the PostScript End of File character (hex 04) after each print job.

Follow the instructions below to add a string after the print job:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer5** tab.
3. Enter the string **04** in the **String After Print Job** text field.
4. Click the **OK** button.

Example: You have an HP LaserJet printer with dual input bins, and want to print on pre-printed forms when using the logical printer PR4. The standard forms are taken from bin 1, and the pre-printed forms are taken from bin 2. The string before print job should contain the

command to select bin 2, $\text{E}_{\text{C}}14\text{H}$ (hex 1B 26 6C 34 48), and the string after print job should contain the command to select bin 1, $\text{E}_{\text{C}}11\text{H}$ (hex 1B 26 6C 31 48).

Follow the instructions below to add strings before and after the print job:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer4** tab.
3. Enter the string **1B 26 6C 34 48** in the **String Before Print Job** text field.
4. Enter the string **1B 26 6C 31 48** in the **String After Print Job** text field.
5. Click the **OK** button.

String Substitutions

The string substitution function performs search and replace operations on the print data. The primary application is to replace printer control commands. Up to twenty string substitutions may be specified individually for each logical printer.

All strings must be entered as hexadecimal byte values, and each match and substitute string must be preceded by a count byte.

You substitute command strings by editing the String Substitutions (PRx_STR) parameter.

Example: Assume that you want to replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A) for logical printer PR1.

Follow the instructions below to substitute command strings:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **PR1** Web page.

3. Enter the string **01 0A 02 0D 0A** in the **String Substitutions** text field.

Hex Code	Explanation
01	length of the string you want to replace
0A	the string you want to replace
02	length of the substitute string
0D 0A	the substitute string

4. Click the **OK** button.

This is the default setting for logical printers PR5 through PR8.

Example: Assume that you want to replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A), and the printer command ^EC_G1 (hex 1B 47 31) with ^EC_Y (hex 1B 59) for logical printer PR2.

Follow the instructions below to substitute command strings:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer2** tab.
3. Enter the string **01 0A 02 0D 0A 03 1B 47 31 02 1B 59** in the **String Substitutions** text field.

Hex code	Explanation
01	length of the UNIX New Line command
0A	the UNIX New Line command
02	length of the ASCII New Line command
0D 0A	the ASCII New Line command
03	length of the replaced printer command
1B 47 31	the replaced printer command
02	length of the new printer command
1B 59	the new printer command

4. Click the **OK** button.

Note: Extensive use of string substitutions will naturally decrease the throughput rate of the AXIS 5600+.

ASCII to Postscript Conversion

The AXIS 5600+ logical printers can translate ASCII print data into PostScript format. This makes it possible to print with a PostScript printer from a host that does not support PostScript. The conversion is selected by activating a filter that converts ASCII data into Postscript. This filter can be activated individually for each logical printer.

Activate your desired filter by setting the Printing Language Translation (PRx_FILT) parameter.

Example: Follow the instructions below to convert ASCII print data to PostScript for logical printer PR2:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer2** tab.
3. Set the **Printer Language Translation** parameter to **POSTSCR**.
4. Click the **OK** button.

If you select the parameter value **AUTO_PS**, the print data for every print job is searched and if any ASCII data is found, it is translated into PostScript. This setting is recommended if you are not sure if the print data is ASCII or PostScript.

PostScript Settings

When a logical printer is set for PostScript conversion, you must specify the following:

- page size
- page orientation
- page formats
- which font is to be used

The default page size is A4 and the default page orientation is Portrait, while the page format parameters are:

Page Format Parameter	Default Value	
Lines per page	66	
Characters per line	0	0=disable line wrap
Characters per inch	10.0	
Lines per inch	60	60 = 60 lines per inch
Left margin	30	30 = 3.0 mm
Top margin	50	50 = 5.0 mm

The PostScript font can be any font that is installed in the printer; if no font is specified, Courier will be used.

Example: Follow the instructions below to set the PostScript parameters for logical printer PR2:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer2** tab.
3. Set the **Printer Language Translation** parameter to **POSTSCR**.
4. Set the **PostScript Page Size** parameter to **LETTER**.
5. Set the **PostScript Page Orientation** parameter to **LANDS**.
6. Enter the string **48 0 120 60 30 50** in the **PostScript Page Format** text field.

Hex code	Explanation
48	48 lines per page
0	disable line wrap
120	12 characters per inch
60	6 lines per inch
30	3 mm left margin
50	5 mm top margin

7. Enter the string **Helvetica** in the **PostScript Font** text field.
8. Click the **OK** button.

Redirecting Print Jobs when a printer is busy

If print data is received for a printer that is already busy, the host must wait. However, it is possible to use a logical printer to redirect the print data to another logical printer when the target printer is busy. If the second printer is also busy, the host must wait until the target printer is ready.

Example: Follow the instructions below to redirect PR1 print jobs to PR3, when the printer assigned to PR1 is busy:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer1** tab.
3. Set the **Physical Port** parameter to **LPT1**.
4. Set the **Secondary Printer** parameter to **PR3**.
5. Set the **Wait On Busy** parameter to **NO**.
6. Click the **OK** button.
7. Select the **Printer3** Web page.
8. Set the **Physical Port** parameter to **LPT2**.
9. Click the **OK** button.

Notes: Logical Printer redirection cannot be nested. If PR3 is redirected to another logical printer, the print job will not be redirected if PR3 is busy.

If both printers are busy, the print job will be printed on the printer that first finishes its active print job.

Read-back of information

The AXIS 5600+ supports bi-directional printing. The information from the printer is read back on the parallel port when the parameter Read Back Port (PRx_IN) has the default setting of AUTO. However, it is required that the printer also supports bi-directional printing. Please refer to your printer documentation for further details regarding bi-directional printing support.

Example:

Follow the instructions below to disable the bi-directional communication for logical printer PR1:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **PR1** tab.
3. Set the **Read Back Port** parameter to **NONE**.
4. Click the **OK** button.

Debugging using the Hex Dump Mode

When hex dump mode is activated, the print data is printed as hexadecimal byte values rather than characters; printer control commands are also printed as hex values. This allows you to inspect what control and print characters are being sent to the printer, which is a useful debugging facility for the more difficult printing problems.

Example:

Follow the instructions below to activate the hex dump mode for PR3:

1. From the print server's internal web page, select **Admin | Logical Printer Settings**.
2. Select the **Printer3** tab.
3. Set the **Hex Dump Mode Enabled** radio button to **YES**.
4. Click the **OK** button.

Note:

The page length for hex dump printouts is determined by the lines per page value of the PostScript page format parameter.

Multi-Language Support

The print server's web interface and Help pages are available in Spanish, French, Japanese and German. The default language is English.

You can change the language of the print server's web interface from the User mode:

1. Click the **Change** button:



Change Button

2. Choose your preferred language from the drop-down list and press F5 to refresh the view.

Character Setting

You can change the character settings from the User mode. Click **Language => Change** from the web interface.

The available character sets are SHIFT_JIS, ISO-8859-1 and UTF-8. When choosing a character set, it is important that your web browser uses the same character set as your print server.

ISO-8859-1 is the default character set.

- For Japanese, SHIFT_JIS or UTF-8 should be used. SHIFT_JIS is default for Japanese.
- Other languages should use UTF-8 or ISO-8859-1.

Network Speed

With the Network Speed parameter you can manually specify the speed at which you will send and receive network packages. You can change the Network Speed setting to correspond to the type of network you are using (10 or 100 mbit).

To change the Network Speed, log in to the print server's internal web page and click **Admin | General Settings | General**. From here you have the option of setting the network speed to:

AUTO_SENSE (default value)	The print server detects which speed is optimal for each network package you transfer.
10_HALF_DX	10 Half Duplex
10_FULL-DX	10 Full Duplex
100_HALF_DX	100 Half Duplex
100_FULL-DX	100 Full Duplex

The default Network Speed value is AUTO_SENSE. This option is the correct option for the majority of users. If you choose a faulty Network Speed option for your network, you may lose contact with the print server. In order to reset the Network Speed parameter to AUTO_SENSE, you will have to perform a factory default on the print server.

Web Flash-Loading

The firmware can now easily be upgraded, since flashloading over the web is possible. Client software is no longer needed to upgrade the firmware. To upgrade your print server via web flash-loading:

1. Open your web browser, enter the IP address of your print server and press **Enter**. (See *Management & Configuration*, on page 119 for detailed instructions on accessing your Axis print server on the web).
2. From the **admin-mode**, click the '**Firmware Upgrade**' button. From here you can download the latest available firmware to your computer and upgrade your print server with it.

Upgrading the Software

All Axis software can be downloaded from www.axis.com free of charge:

- AXIS IP JumpStarter
- AXIS Print Monitor
- AXIS Print Utility for Windows
- AXIS Print Utility for OS/2
- AXIS NetPilot
- AXIS ThinWizard
- The AXIS 5600+ firmware held in Flash Memory
- The *axinstall* script
- The AXIS MIB file

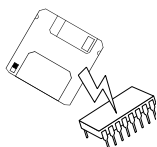
Obtaining the Updated Software

You can obtain all the print server software as well as the latest utility software from the following locations:

- AXIS Network Product CD
- Over the Internet, by accessing the Axis Communications web site <http://www.axis.com>
- your local dealer

Note: If you are upgrading your print servers using AXIS ThinWizard, you do not need to obtain the firmware file prior to the upgrading process, provided that you are connected to the Internet.

Upgrading the Firmware



You can upgrade the AXIS 5600+ Flash memory using one of the following methods:

- From the print server's internal web pages
- AXIS ThinWizard (TCP/IP)
- FTP (TCP/IP)
- AXIS NetPilot Upgrade Wizard (IPX/SPX)

Note: Updating instructions are also supplied with the software update.

Upgrading from the Print Server's Internal Web Pages

Follow these instructions to upgrade the firmware of your print server from its internal web pages (Web Flash-loading):

1. Open your web browser, enter the IP address of your print server and press **Enter**. (See *Management & Configuration*, on page 119 for detailed instructions on accessing your Axis print server on the web).
2. From the **admin-mode**, click the '**Firmware Upgrade**' button. From here you can download the latest available firmware to your computer and upgrade your print server with it.

Upgrading using AXIS ThinWizard

Upgrading using AXIS ThinWizard

AXIS ThinWizard 3.0 is a tool that enables batch upgrading of several print servers and can be used for upgrading the print server's firmware in TCP/IP networks.

You must assign an IP address to the print server, as described earlier in this manual, before you can use this upgrading method.

Follow the instructions below to upgrade your print servers using AXIS ThinWizard:

1. Click the **Manage Network** button in the AXIS ThinWizard main menu.
2. Select a network group from the drop-down list. You can only update the servers that are included in the selected network group.
3. All AXIS servers included in the network group appear. Click the **Firmware** button to start the Upgrade Wizard.
4. Follow the instructions that are presented to you to complete the installation.

Refer to *Using AXIS ThinWizard for Print Server Management*, on page 127, for more information about AXIS ThinWizard.

Upgrading over the Network using FTP

To upgrade over the network using FTP you will need the file with the new print server software. The name of this file is in the form `product_version.bin`, e.g. `5600+_634.bin` for software release 6.20. You can use any of the previously mentioned methods to obtain the new file.

You must assign the AXIS 5600+ with an IP address, as described in *Assigning an IP address*, on page 22, before you can use this upgrading method.

Follow the procedures below to upgrade the AXIS 5600+:

Caution! Be careful not to interrupt the file transfer. If the transfer is interrupted the AXIS 5600+ may have to be re-initialized by your dealer.

1. Log in to the AXIS 5600+ with the command:

```
ftp <host name>, or ftp <IP address>
```

2. You will be prompted for user id and password. Use the user id `root`, which has the default password `pass`.
3. Type the following command to change to binary transfer mode:

```
binary
```

4. Type the command:

```
put <software name> FLASH
```

where `<software name>` is the name of the new print server software, e.g. `5600+_634.bin`

5. Wait for the Flash loading operation to finish. This normally takes 1 to 4 minutes. The unit automatically restarts with the new print server software.
6. Log out using one of the following commands, depending on your FTP version:

```
quit, bye or exit
```

Note: Should you encounter any problems that prevent a successful upgrade over your network, it may become necessary to perform the flash loading operation via the parallel port, LPT1. In this case, you are advised to contact your dealer.

Upgrading using AXIS NetPilot

This method is recommended for upgrading the flash memory in NetWare networks. An Upgrade Wizard is available to guide you through the necessary procedures.

Follow the instructions below to upgrade your print servers:

1. Obtain the firmware file, using one of the methods presented page 171.
2. Put the file in the AXIS NetPilot 'Upgrade' folder. This folder resides in the same folder as the AXIS NetPilot program and was created when AXIS NetPilot was installed on your client.
3. Start the Upgrade Wizard by clicking on the **Upgrade** icon on the AXIS NetPilot toolbar.
4. Proceed the installation by following the instructions that are presented to you in the Upgrade Wizard. Refer to the online help in AXIS NetPilot for additional information.

NetWare

Windows

OS/2

Macintosh

UNIX

Test Button

The test button is located on the front right hand side of the AXIS 5600+ and is used for:

- Checking the connection to the printer by printing a test page.
- Printing a parameter list, showing the AXIS 5600+ current settings.
- Resetting the AXIS 5600+ parameters to the factory default settings.

The Test Page Press the test button once to print a test page. If the test page prints, the parallel interface is functioning correctly. The printed Test Page contains basic information about the AXIS 5600+. It is recommended that you print a test page every time you have connected the AXIS 5600+ to a printer.

Note: The test page is printed on LPT1 by default. If you want to print the test page on LPT2 or COM1 instead, you should set the **Internal Printout Destination** parameter to **LPT2** or **COM1**.

The Parameter List Press the test button twice to print a parameter list showing the current AXIS 5600+ settings. This list provides comprehensive details of all the parameters and their current status. Refer to *The Parameter List*, on page 178.

If you want to change any of the parameters, use one of the methods that are described in *Section Management & Configuration*, on page 119.

Note: The parameter list is printed on LPT1 by default. If you want to print the parameter list on LPT2 or COM1 instead, you should set the **Internal Printout Destination** parameter to **LPT2** or **COM1**.

Performing a Factory Default

Follow the instructions below to reset the AXIS 5600+ to the factory default settings:

1. Remove the Power Adapter to switch off the AXIS 5600+.
2. Remove the network cable.
3. Press and hold down the test button while you plug the Power Adapter back in. Continue to hold down the test button until the network indicator begins to flash at one-second intervals. This should take about 5 seconds.
4. Release the test button and wait until the network indicator flashes at least five times.
5. Press and hold down the test button again until the network indicator remains constantly lit.
6. Disconnect the Power Adapter.
7. Insert the network cable.
8. Restart the AXIS 5600+ by reconnecting the Power Adapter.

Note: All parameters except Node Address (NODE_ADDR), Internet Address (IP_ADDR) and DHCP enabled or disabled (DHCP_ENABLE.) are reset. If you want to change these parameters, use either AXIS NetPilot or any standard Web browser. Please refer to *Section Management & Configuration*, on page 119.

The Parameter List

This appendix provides an overview of the AXIS 5600+ parameters. Please refer to www.axis.com for the latest technical information.

The *Config* File

The left-hand column shows the parameters and their default values as they appear in the *config* file and the right-hand column shows the name of the parameters as they appear in the internal Web pages.

After you have changed them, most parameters take effect for the next print job. If *Requires Restart* appears in a parameter description, you must restart the AXIS 5600+, before the new setting for that parameter takes effect.

Please refer to *Section Management & Configuration*, on page 119, for more information about how to change the parameters.

Note: The password parameters, ROOT_PWD and PROS_PWD only appear when you are logged in to the AXIS 5600+ using *root*. The password parameters will not be printed when you are printing the parameter list using the test button.

--- GENERAL MENU	
NODE_ADDR. : 00 40 8C 10 00 86	Node Address
NETWORK_SPEED : (AUTO_SENSE) AUTO_SENSE, 10_HALF_DX, 10_FULL_DX, 100_HALF_DX, 100_FULL_DX	Network Speed
PS_NAME. : AXIS100086	Print Server Name (<i>100086 are the last six digits of the serial number</i>)
ROOT_PWD. : pass	Root Password
USERS. :	User and Printer Access List
BASE_URL. : www.axis.com	Base URL
CHARSET: ISO-8859-1 (ISO-8859-1, SHIFT_JIS, UTF-8)	Character Settings
LANG.: English (English, German, Japanese, French, Spanish)	Language Menu
AXIS_PRINT_SYSTEM.: YES	Enable compatibility with AXIS Print System
HP_JETADMIN. : NO (YES, NO)	HP JetAdmin Support
DEF_OUT. : PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, COM1, LPT2)	Internal Printout Destination
SYS_LOC. :	System Location
SYS_CONT. :	System Contact

--- TCP/IP MENU

TCP_ENB.	: YES	TCP/IP Enabled
INT_ADDR.	: 0 0 0 0	Internet Address
DEF_ROUT.	: 0 0 0 0	Default Router Address (0.0.0.0 for no router)
NET_MASK.	: 0 0 0 0	Net Mask (e.g. 255.255.255.0 for class C, 0.0.0.0 for auto-sense)
PROS_PWD.	: netprinter	PROS Password
PROS_PRT.	: 35	PROS TCP Port Number
LPD_BANN.	: OFF (OFF, AUTO, LAST)	LPD Banner Page Mode
DHCP_ENB.	: YES	DHCP Enabled
AUTOIP_ENB.	: YES	Auto-IP enabled
BOOTP_ENB.	: YES	BOOTP Enabled
RARP_ENB.	: YES	RARP Enabled
WINS_ENB.	: YES	WINS Enabled
WINS_ADDR1.	: 0 0 0 0	Primary WINS Server Address
WINS_ADDR2.	: 0 0 0 0	Secondary WINS Server Address
NBT_SCOPE_ID.	:	NBT Scope ID (Defines the NetBIOS scope to be used with WINS name registration)
DNS_ENB.	: YES	DNS Enabled
DNS_ADDR1.	: 0 0 0 0	Primary DNS Server Address
DNS_ADDR2.	: 0 0 0 0	Secondary DNS Server Address
DOMAIN_NAME.	:	Domain Name (Defines the domain to which the AXIS 5600+ belongs)
SMTP_SERVER:		Mail Server that uses Simple Mail Transfer Protocol.
SLP_SCOPE_LIST.	: DEFAULT	Defines the SLP scope to which the AXIS 5600+ belongs.
RTN_OPT.	: NO	Reverse Telnet Options Enabled
RTEL_PR1.	: 0	PR1 Reverse Telnet Port Number
RTEL_PR2.	: 0	PR2 Reverse Telnet Port Number
RTEL_PR3.	: 0	PR3 Reverse Telnet Port Number
RTEL_PR4.	: 0	PR4 Reverse Telnet Port Number
RTEL_PR5.	: 0	PR5 Reverse Telnet Port Number
RTEL_PR6.	: 0	PR6 Reverse Telnet Port Number
RTEL_PR7.	: 0	PR7 Reverse Telnet Port Number
RTEL_PR8.	: 0	PR8 Reverse Telnet Port Number

--- SNMP MENU

READ_COM.	: public	Read Community
WRT_COM.	: pass	Read/Write Community
TRAPADDR.	: 0 0 0 0	Trap Address
TRAP_COM.	: public	Trap Community
SYS_NAME.	:	System Name
SNMP_AUT.	: DISABLE (DISABLE, ENABLE)	Authentication Failure Trap
TRAP_PRT.	: DISABLE (DISABLE, ENABLE)	Printer Failure Trap

--- NETWARE MENU

NETW_ENB.	: YES	NetWare Enabled
NETW_TRANSPORT_PROTOCOL.	: DUAL_STACK (IPX_ONLY, IP_ONLY, DUAL STACK)	NetWare Transport protocols Enabled
JOB_CHECK_DELAY.	: 5	Job Check Delay (Print Server queue polling interval)

NetWare

Windows

OS/2

Macintosh

UNIX

CONF_CHECK_DELAY.	: 300	Configuration Check Delay (Interval between automatic configuration checks)
FR_802_3.	: YES	IEEE 802.3 Frame Type Enabled
FR_ETH_2.	: YES	Ethernet II Frame Type Enabled
FR_802_2.	: YES	IEEE 802.2 Frame Type Enabled
FR_SNAP.	: YES	SNAP Frame Type Enabled
NCP_BURST_MODE.	: YES	NCP Burst Mode Enabled (<i>Requires Restart</i>)
PSEVER_NDS_TREE	:	The PSEVER_NDS parameters specify which NDS tree or file server the AXIS 5600+ will login to. It also specifies the path to the print server object in the tree.
PSEVER_NDS_FILESERVER:		
PSEVER_NDS_DISTINGUISHED_NAME:		
PSEVER_BINDERY1.	:	PSEVER Bindery 1 (Bindery file server name)
PSEVER_BINDERY2.	:	PSEVER Bindery 2 (Bindery file server name)
PSEVER_BINDERY3.	:	PSEVER Bindery 3 (Bindery file server name)
PSEVER_BINDERY4.	:	PSEVER Bindery 4 (Bindery file server name)
PSEVER_BINDERY5.	:	PSEVER Bindery 5 (Bindery file server name)
PSEVER_BINDERY6.	:	PSEVER Bindery 6 (Bindery file server name)
PSEVER_BINDERY7.	:	PSEVER Bindery 7 (Bindery file server name)
PSEVER_BINDERY8.	:	PSEVER Bindery 8 (Bindery file server name)
PSEVER_BINDERY9.	:	PSEVER Bindery 9 (Bindery file server name)
PSEVER_BINDERY10.	:	PSEVER Bindery 10 (Bindery file server name)
PSEVER_BINDERY11.	:	PSEVER Bindery 11 (Bindery file server name)
PSEVER_BINDERY12.	:	PSEVER Bindery 12 (Bindery file server name)
PSEVER_BINDERY13.	:	PSEVER Bindery 13 (Bindery file server name)
PSEVER_BINDERY14.	:	PSEVER Bindery 14 (Bindery file server name)
PSEVER_BINDERY15.	:	PSEVER Bindery 15 (Bindery file server name)
PSEVER_BINDERY16.	:	PSEVER Bindery 16 (Bindery file server name)
NPRINTER1.	:	NPRINTER/RPRINTER 1 (Print Server name and slot number)
NPRINTER2.	:	NPRINTER/RPRINTER 2 (Print Server name and slot number)
NPRINTER3.	:	NPRINTER/RPRINTER 3 (Print Server name and slot number)
NPRINTER4.	:	NPRINTER/RPRINTER 4 (Print Server name and slot number)
NPRINTER5.	:	NPRINTER/RPRINTER 5 (Print Server name and slot number)
NPRINTER6.	:	NPRINTER/RPRINTER 6 (Print Server name and slot number)
NPRINTER7.	:	NPRINTER/RPRINTER 7 (Print Server name and slot number)
NPRINTER8.	:	NPRINTER/RPRINTER 8 (Print Server name and slot number)

--- NetBIOS/NetBEUI MENU

LSQLM_ENB.	: YES	NetBIOS/NetBEUI Enabled
NB_FR_TYPE.	: FR_AUTO (FR_AUTO, FR_802_2, FR_DIX)	NetBIOS Frame Type <i>(Requires Restart)</i>
LPRINT_1.	: AX100086.LP1	Name Printer 1 <i>(100086 are the last six characters of the serial number)</i>
LLOGIC_1.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 1
LPRINT_2.	: AX100086.LP2	Name Printer 2 <i>(100086 are the last six characters of the serial number)</i>
LLOGIC_2.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 2
LPRINT_3.	: AX100086.COM1	Name Printer 3 <i>(100086 are the last six characters of the serial number)</i>
LLOGIC_3.	: PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 3
LPRINT_4.	:	Name Printer 4 Name
LLOGIC_4.	: PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 4
LPRINT_5.	:	Name Printer 5
LLOGIC_5.	: PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 5
LPRINT_6.	:	Name Printer 6
LLOGIC_6.	: PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 6
LPRINT_7.	:	Name Printer 7
LLOGIC_7.	: PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 7
LPRINT_8.	:	Name Printer 8
LLOGIC_8.	: PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 8

--- APPLE TALK MENU

ATLK_ENB.	: YES	AppleTalk Enabled
ATK_ZONE.	:	AppleTalk Zone
ZONER_EN.	: YES	HP Zoner Enabled
ATK_FONT.	: DEFAULT (DEFAULT, 35N, ALL)	Font (PostScript Font Set)
AUTO_DT_PRIN	: DEFAULT: ENABLED	Auto-Detect Printer Type
APRINT_1.	: AXIS100086_LPT1	Name Printer 1 <i>(100086 are the last six digits of the serial number)</i>
ATYPE_1.	: LaserWriter	Type Printer 1
ALOGIC_1.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer
BINARY_TYPE_1.	: TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_1
APRINT_2.	: AXIS100086_LPT2	Name Printer 2
ATYPE_2.	: LaserWriter	Type Printer 2
ALOGIC_2.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 2
BINARY_TYPE_2.	: TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_2
APRINT_3.	: AXIS100086_COM1	Name Printer 3
ATYPE_3.	: LaserWriter	Type Printer 3
ALOGIC_3.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 3
BINARY_TYPE_3.	: TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_3

--- PRINTER1 MENU

PR1_OUT.	: LPT1 (LPT1, COM1, LPT2)	Physical Port
PR1_SND.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR1_WAIT.	: YES	Wait on Busy
PR1_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR1_BEf.	:	String Before Print Job
PR1_STR.	:	String Substitutions
PR1_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR1_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR1_AFT.	:	String After Print Job
PR1_DUMP.	: NO	Hex Dump Mode Enabled
PR1_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR1_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR1_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR1_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER2 MENU

PR2_OUT.	: LPT2 (LPT1, COM1, LPT2)	Physical Port
PR2_SND.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR2_WAIT.	: YES	Wait on Busy
PR2_IN.	: AUTO (NONE, AUTO)	Read back Port (Read-Back of information)
PR2_BEf.	:	String Before Print Job
PR2_STR.	:	String Substitutions
PR2_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR2_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR2_AFT.	:	String After Print Job
PR2_DUMP.	: NO	Hex Dump Mode Enabled
PR2_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR2_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR2_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR2_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER3 MENU

PR3_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR2_SND.	: PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR2_WAIT.	: YES	Wait on Busy
PR3_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR3_BEf.	:	String Before Print Job
PR3_STR.	:	String Substitutions
PR3_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR3_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR3_AFT.	:	String After Print Job
PR3_DUMP.	: NO	Hex Dump Mode Enabled
PR3_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR3_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR3_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR3_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER4 MENU

PR4_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR4_SND.	: PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR4_WAIT.	: YES	Wait on Busy
PR4_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR4_BEf.	:	String Before Print Job
PR4_STR.	:	String Substitutions
PR4_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR4_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR4_AFT.	:	String After Print Job
PR4_DUMP.	: NO	Hex Dump Mode Enabled
PR4_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR4_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR4_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR4_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER5 MENU

PR5_OUT.	: LPT1 (LPT1, COM1, LPT2)	Physical Port
PR5_SND.	: PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR5_WAIT.	: YES	Wait on Busy
PR5_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR5_BEf.	:	String Before Print Job
PR5_STR.	: 010A020D0A	String Substitutions
PR5_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR5_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR5_AFT.	:	String After Print Job
PR5_DUMP.	: NO	Hex Dump Mode Enabled
PR5_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR5_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR5_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR5_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER6 MENU

PR6_OUT.	: LPT2 (LPT1, COM1, LPT2)	Physical Port
PR6_SND.	: PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR6_WAIT.	: YES	Wait on Busy
PR6_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR6_BEf.	:	String Before Print Job
PR6_STR.	: 010A020D0A	String Substitutions
PR6_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR6_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR6_AFT.	:	String After Print Job
PR6_DUMP.	: NO	Hex Dump Mode Enabled
PR6_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR6_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR6_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR6_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER7 MENU

PR7_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR7_SND.	: PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR7_WAIT.	: YES	Wait on Busy
PR7_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR7_BEf.	:	String Before Print Job
PR7_STR.	: 010A020D0A	String Substitutions
PR7_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR7_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR7_AFT.	:	String After Print Job
PR7_DUMP.	: NO	Hex Dump Mode Enabled
PR7_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR7_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR7_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR7_FONT.	:	PostScript Font (Courier when not specified)

--- PRINTER8 MENU

PR8_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR8_SND.	: PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR8_WAIT.	: YES	Wait on Busy
PR8_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR8_BEf.	:	String Before Print Job
PR8_STR.	: 010A020D0A	String Substitutions
PR8_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR8_FILT.	: POSTSCR (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR8_AFT.	:	String After Print Job
PR8_DUMP.	: NO	Hex Dump Mode Enabled
PR8_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR8_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR8_FORM.	: 66 0 100 60 30 50	PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR8_FONT.	:	PostScript Font (Courier when not specified)

--- LPT1 Menu

L1_CENTR.	: HISPEED (IBM_PC, STNDRD, FAST, HISPEED, HINOACK)	Centronics Interface Timing LPT1
L1_BSYTM.	: 60	Busy Status Time-Out LPT1 (All status reporting disabled if set to 0)
L1_MGM_INFO.	: AUTO (DISABLE, AUTO)	Printer Management Information LPT1
L1_COMMENT.	:	Optional user comment describing the printer at LPT1
L1_READT.	: 3	Set time (in seconds) before reverse data time-out after completed print job

--- COM1 Menu

C1_BAUDR.	: 9600 (300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200)	Baud Rate COM1
C1_NBITS.	: 8 (7, 8)	Word Length COM1
C1_PARIT.	: NONE (NONE, ODD, EVEN)	Parity COM1
C1_STOPB.	: 2 (1, 2)	Stop Bits COM1
C1_HNSH.	: ROBUST-BOTH (NONE, XON/XOFF, ROBUST, RDY/BSY, BOTH, ROBUST-BOTH)	Handshake Protocol COM1
C1_READT.	: 3	Set time (in seconds) before reverse data time-out after completed print job
C1_BSYTM.	: 60	Busy Status Time-Out COM1 (All status reporting disabled if set to 0)
C1_MGM_INFO.	: AUTO (DISABLE, AUTO)	Printer Management Information COM1
C1_COMMENT.	:	Optional user comment describing the printer at COM1

--- LPT2 Menu

L2_CENTR.	: HISPEED (IBM_PC, STNDRD, FAST, HISPEED, HINOACK)	Centronics Interface Timing LPT2
L2_BSYTM.	: 60	Busy Status Time-Out LPT2 (All status reporting disabled if set to 0)
L2_MGM_INFO.	: AUTO (DISABLE, AUTO)	Printer Management Information LPT2
L2_COMMENT.	:	Optional user comment describing the printer at LPT2
L1_READT.	: 3	Set time (in seconds) before reverse data time-out after completed print job

--- e-mail Menu

EMAIL_NOTIFICATION:	YES	e-mail Notification
REPLY_ADDRESS:		Network Administrator e-mail address
PAPER_JAM_ADDRESS:		e-mail address of paper-jam Administrator
OUT_OF_PAPER_ADDRESS:		e-mail address of Out-Of-Paper Administrator
TONER_LOW_ADDRESS:		e-mail address of Toner-Low Administrator
NO_TONER:ADDRESS:		e-mail address of No-Toner Administrator
PRINTER_OFFLINE_ADDRESS:		e-mail address of Printer-Offline Administrator

Technical Specifications

Supported Systems

Novell NetWare:	Versions 3.12, 4.x, 5.x, 6.0 and above, supporting both NDS and Bindery Emulation. NDPS supported by versions 4.11 and above. NetWare5 and above and Pure IP are supported. Print Methods: PSERVER, RPRINTER/NPRINTER, NDPS and iPrint.
Microsoft LAN Manager:	LAN Manager 2.0c and above, running under OS/2 ver 1.3 and above.
IBM LAN Server:	LAN Server 1.3 and above, running under OS/2 ver 1.3 and above including OS/2 Warp, OS/2 Warp Connect.
Microsoft Windows:	Windows NT ver. 3.5 and above, Windows 2000, Windows for Workgroups, Windows 95, Windows 98, Windows Me, Windows XP
LANtastic	LANtastic 7.0, from any of the supported Windows clients, defined above.
Other operating systems	All Operating Systems supporting the TCP/IP suite of protocols, including: BSD Systems - BSD 4.2, 4.3, 4.4, SunOS4 (Solaris 1.x), DEC Ultrix etc. System V Systems - R3, R4, AT&T, Interactive, SCO, SunOS5 (Solaris 2.x), HP-UX, IBM AIX, Silicon Graphics IRIX, DEC Alpha OSF/1, BULL (BOS, AIX)
Other Systems	IBM (MVS, VM, VSE, OS/400), DEC VMS, guidelines for other systems

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Print Methods: LPD, FTP, PROS (named pipe & filtered), Reverse Telnet, IPP

Apple EtherTalk: Print Method: AppleTalk Phase 2

Windows

WWW: Netscape Navigator 4.0 and higher and MS Internet Explorer 4.0 and higher

Supported Protocols

NetWare: IPX, SAP, RIP, SPX, SNMP, NCP (extended with NDS), NLSP, DIAG, TCP/IP

OS/2

Windows and OS/2: NetBIOS/NetBEUI or TCP/IP, WINS

LANtastic NetBIOS/NetBEUI

Macintosh

TCP/IP: LPD, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP, ICMP, Auto-IP, IP, TCP, UDP, HTTP, SNMP, TFTP, SLPv2, Dynamic DNS, IPP

UNIX

Apple EtherTalk: AARP, ATP, DDP, NBP, PAP, RTMP, ZIP

Network Management SNMP-MIB II compliant (over UDP/IP and IPX), host resource MIB compliant (over UDP/IP and IPX), private enterprise MIB included. LAN Network Manager for OS/2. Print server status in NWAdmin/PCONSOLE

Logical Connection NWay support to provide auto-detection of the network speed. Running simultaneously any combination of the supported protocols. Use of IEEE802.2, IEEE802.3, SNAP and Ethernet II frame types simultaneously.

Hardware 32 bit 100 MHz RISC Controller, 2 MB Flash memory, 8 MB RAM

Attachments	RJ-45 connector (Category 5 Unshielded Twisted Pair) for 10baseT Ethernet and 100baseTX Fast Ethernet.
Security	
UNIX:	Root password. User access list and printer access
NetWare:	Encrypted passwords. Packet Signature supported
Logical Printers	The logical printer ports can be programmed to perform auto ASCII to PostScript conversion, string before and after job, string substitution, alternative output and character set conversion.
Parallel Printer	Two IEEE 1284 compliant high-speed parallel ports with 25-pin DSUB connectors. s. Sustained throughput over 1 Mbyte/s using NetWare. Bi-directional support for Apple, Reverse Telnet, PROS. ECP support.
Serial Printer	One serial port, RS 232, 9-pin DSUB connector. XON/XOFF or RTS/CTS. Data rates up to 115,200 baud
Front Panel	2 LED indicators: Power and Network Test button for information printouts
Power Consumption	Power provided by external supply (Maximum 1A at 5 VDC) Use only: AXIS 5600+ version 1: PS-D (12 V, 0,8 A) AXIS 5600+ version 2: PS-F (5 VDC, 1500 mA) or PS-H (5.1 VDC, 2000 mA)
Dimensions	Height x Width x Depth 1.1 x 6.3 x 5.1 inches (2.9 x 16.0 x 12.9 cm)

NetWare

Weight 0.64 lb. (0.28 kg)

Windows

Environmental Temperature: 40 - 105° F (5 - 40° C)
Humidity: 20-80% RH, non-condensing

OS/2

Approvals

Macintosh

EMC: EN 55022/1998, EN55024/1998. FCC Class A



UNIX

Safety: EN 60950

Glossary

Active Directory	Active Directory - a structure supported by Windows 2000 that lets any object on a network be tracked and located. Active Directory is the directory service used in Windows 2000 Server and provides the foundation for Windows 2000 distributed networks.
AIX	Advanced Interactive eXecutive. A version of the UNIX operating system from IBM that runs on various IBM computers including Mainframe systems.
ARP	Address Resolution Protocol. A protocol within the TCP/IP suite of network protocols that allows a host to find the physical address of a node on the same network. It is available in UNIX, Windows 95, Windows 98, Windows NT, Windows 2000 and Windows XP. ARP cannot be used across routers.
BOOTP	BOOT Protocol. A TCP/IP protocol, used for downloading start-up information such as the IP address to hosts on the network. It is only available in UNIX. BOOTP requires a BOOTP daemon on your system. A request made to an active BOOTP daemon initiates a search of the Boot Table for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.
BSD	Berkeley Software Distribution. The University of California, Berkeley additions to the UNIX operating system.
<i>config</i> file	This is a file that resides in the print server's memory and contains all the parameters that determine the AXIS 5600+ functionality. By editing the <i>config</i> file (changing the parameter settings), you can configure the AXIS 5600+ to meet the printing needs of your network.
DHCP	Dynamic Host Configuration Protocol. DHCP is available in Windows NT, NetWare 5 and UNIX systems, and allows for the automatic but temporary assignment of IP addresses from a central pool. DHCP

causes the selected host to automatically allocate and download an unused IP address to the requesting print server. It also provides validation data that defines how long the IP addresses will remain valid.

To fully benefit from this method, the AXIS 5600+ also supports the WINS host name resolution protocol, which is available in Windows NT networks.

DNS Domain Name Service. Reflects the server names and addresses within a network.

Flash Memory The print server software is stored in Flash Memory. This memory is provided by a silicon chip that like any other ROM device, retains data content even after power is removed. However, Flash Memory is unique because it allows its data to be erased and re-written. This means that you can install software updates for your server as soon as they become available, without having to replace any parts. The new software is simply loaded into the server over the network.

FTP File Transfer Protocol. A TCP/IP protocol used for logging in to network servers and for transferring files.

HTML Hypertext Markup Language. A standard hypertext language used for creating World Wide Web pages and other hypertext documents.

HTTP Hypertext Transfer Protocol. The TCP/IP protocol for Web based communication.

IP Internet Protocol. The TCP/IP session-layer protocol that regulates packet forwarding by tracking IP addresses, routing outgoing messages and recognizing incoming messages.

LED Light Emitting Diode.

Logical Printer A logical printer acts as a filter between the network and the physical printer. It appears to the user as a normal printer with additional characteristics. For example a UNIX workstation may only send a line feed (LF) to a shared printer that needs carriage return (CR) and LF.

The logical printer can solve this problem by adding a CR.

MIB	Management Information Base. A database of network configuration information used by SNMP and CMIP to monitor or change network settings.
NCP	NetWare Core Protocol. Network clients use the NCP to request services of servers, and servers use NCP to provide services, such as file and print services.
NDS	NetWare Directory Services. A hierarchical data base that manages NetWare network resources such as servers and volumes.
Peer-to-Peer Printing	In a Peer-to-Peer printing environment, print jobs are sent directly to the print server from the user.
RARP	Reverse Address Resolution Protocol. A TCP/IP protocol used for downloading IP addresses in UNIX networks. It requires a RARP daemon on your system, and only operates within a single network segment. A request made to an active RARP daemon initiates a search of the Ethernet Address Table for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.
RISC	Reduced Instruction Set Computing. A processor that recognizes only a limited number of assembly-language instructions.
SAP	Service Advertising Protocol. A NetWare network name advertising service that e.g. file servers can use for advertising their existence to network clients.
SNMP	Simple Network Management Protocol. A TCP/IP protocol for managing and monitoring nodes on a network.
TCP	Transmission Control Protocol. The connection-oriented, transport-level protocol used in the TCP/IP suite of protocols.
TFTP	Trivial File Transport Protocol. A simpler version of the FTP protocol

NetWare

Windows

OS/2

Macintosh

UNIX

that is used by the print server for automatic downloading of config files.

UNIX A 32-bit multi-tasking, multi-user operating system originally developed by AT&T.

URL Uniform Resource Locator. A way of specifying the location of publicly available information on the Internet.

WINS Windows Internet Name Service. A NetBIOS Name Server that maps NetBIOS names to dynamically assigned IP addresses.

Wizard A special form of user assistance that automates a task through a dialog with the user. Wizards help the user to accomplish tasks that are complex and require experience, and even for the experienced user can help to speed up an operation.

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